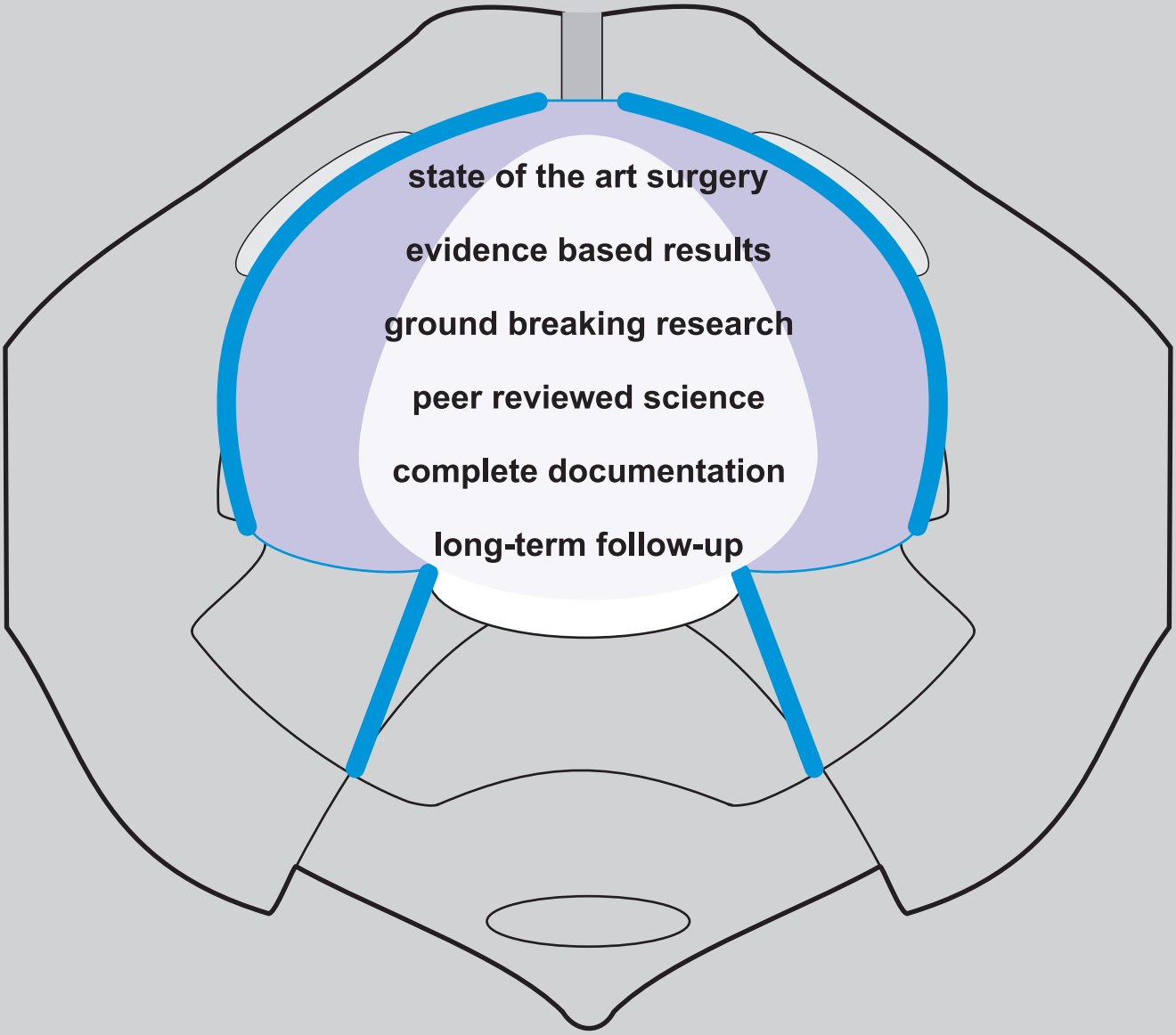
National VVF Project Nigeria

evaluation report XXV

2008

twenty-five years of obstetric fistula surgery 1984 thru 2008



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chief consultant fistula surgeon

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babbar ruga fistual teaching hospital
katsina
n i g e r i a

National VVF Project Nigeria

evaluation report XXV

2008

twenty-five years of obstetric fistula surgery 1984 thru 2008

Nigeria

Ebonyi State University Teaching Hospital
ABAKALIKI

Special VVF Center
B/KEBBI

Faridat Yakubu VVF Hospital
GUSAU

General Hospitals
HADEJIA - JAHUN

Laure Fistula Center
KANO

Babbar Ruga Fistula Hospital
KATSINA

Federal Medical Center
NGURU

Maryam Abacha Hospital
SOKOTO

Kofan Gayan Hospital
ZARIA

République du Niger

Centre Hospitalier Départemental
MARADI

Hôpital National
NIAMEY

Maternité Centrale
ZINDER

kees waaldijk MD PhD

the (surgical) management of the obstetric fistula has to start the moment the leaking of urine becomes manifest

no need to become an outcast

the immediate management by catheter and/or early closure is highly successful and will prevent the woman from becoming an outcast

the best way to treat the whole patient is by closing the fistula

do not waste time, energy and money on things which make no sense

concentrate on the most important thing: close the fistula

prevention

only by building hospitals, roads and schools
lesson learned from history

in the USA 480,000 teenage deliveries during the year 2002
however, not a single obstetric fistula

foreword

this is a fine opportunity to report evidence based about what can be done and what has been achieved in 25 years by a professional fistula surgeon field worker under rather primitive conditions

during the last 10 years it has become very sexy to speak, write and … raise funds about the obstetric fistula; however, most of the talking and writing is done by verbal surgeons in the industrialized world who can diagnose the obstetric fistula only by the smell of urine and who are claiming credit for the ideas, plans and work of others taking advantage of the fact that the real fistula surgeons are isolated

the real fistula surgeons are surprised and annoyed to see their ideas, plans, efforts and work published by others who came to visit them as obstetric fistula tourists under the pretence of offering help

all their publications carry the same message: there is no research being carried out, no peer reviewed classification, no standard operation technique, no follow-up, no audit and no evidence-based results; which is not true, see this report

however, the only evidence base of these arrogant verbal surgeons is that they never perform(ed) a fistula repair; hypocrisy pur sang telling others what to do

what surprises the author most is the naivety of editors, peers and readers to believe that a person living and working in the usa with a 14-day holiday a year has been able to collect personal expertise in the obstetric fistula; or is it you peer me i peer you; what about common sense

all the insulting remarks the author has had about his work has made him even more assertive than before; especially since he is not accepting the fact that others claim credit for his work

this report is evidence-based proof of what has been done under very primitive circumstances in terms of patient care in providing some 30,000 obstetric fistula patients with a second chance in life, in terms of setting up fistula repair and fistula training centers, in terms of training all kinds of health personnel, in terms of clinical research in the complex obstetric (fistula) trauma resulting in scientific classification with consequences for operation technique and outcome, state-of-the-art operation techniques, insight into the mechanism of (in)continence with solutions, in terms of long-term follow-up with evidence-based results, in terms of complete and systematic documentation with a scientific database of up to 250 parameters per patient etc etc

a stage has been reached where the expertise collected may now be of value to the industrialized world as well such as: physiologic operation technique(s) for urine incontinence in the female, anatomic operation technique for sphincter ani rupture and mini-invasive operation techniques for cystocele and total cervix prolapse

kees waaldijk MD PhD 25th of april 2010

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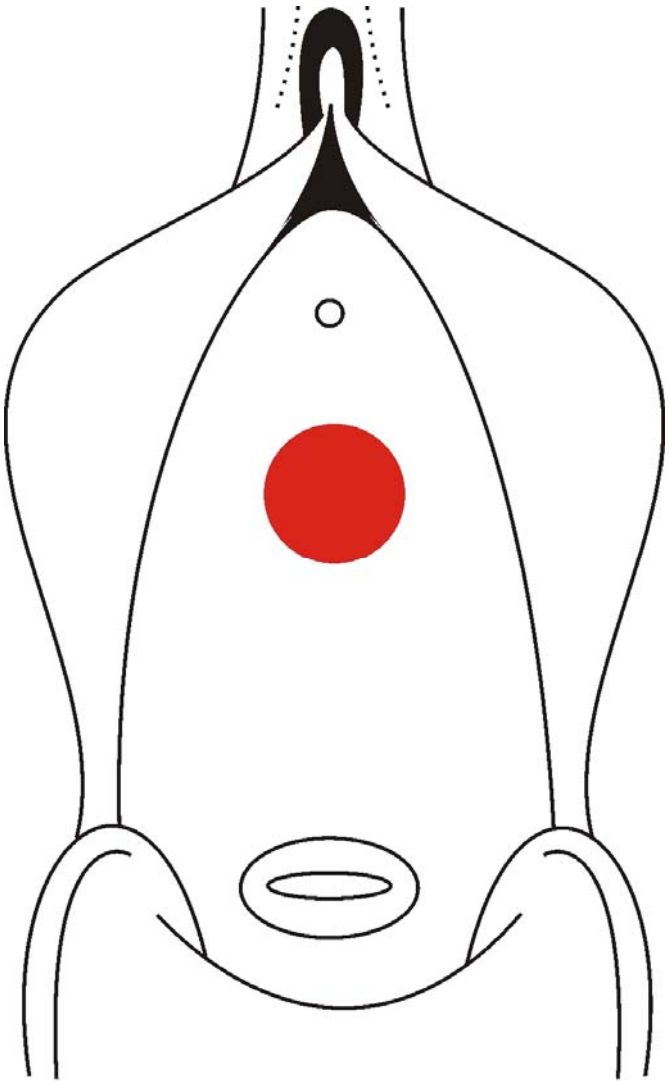

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25 years of obstetric fistula (surgical) management 1984 thru 2008

the project was started by one operation in december 1983 in Katsina state and then step-by-step over 25 years it was extended to become **the largest VVF-repair and VVF-training center in the world**

it is government owned and as such for 95% financed by the government; however, without the financial support of several NGOs, and foremost the SK foundation, it would not have been possible to have achieved this

during the year we started a new center in Yobe state making **a grand total of 12 VVF-repair centers:** 8 centers in Northern Nigeria, 1 center in Southern Nigeria whilst substantial support is given to 3 centers in République du Niger

we were able to establish **2 (inter)national VVF-training centers** in Katsina and Kano where doctors, nurses and other professionals from all over the world come for training

in Katsina, Kano and Kaduna State separate rehabilitation centers have been established making **a grand total of 3 major rehabilitation centers**

during the year a total of 2,350 VVF/RVF-repairs were performed in the project making **a grand total of 29,684 repairs**

during the year a total of 13 doctors and 5 nurses attended our regular training program making **a grand total of 718 trainees: 321 doctors, 326 nurses/midwives and 71 other persons**

during the year 2 workshops were executed making **a grand total of 24 workshops**

we have a close cooperation with the Hamlin fistula projects in Ethiopia, the national fistula project of République du Niger and the AMREF fistula project in East Africa; we would like to cooperate with more projects

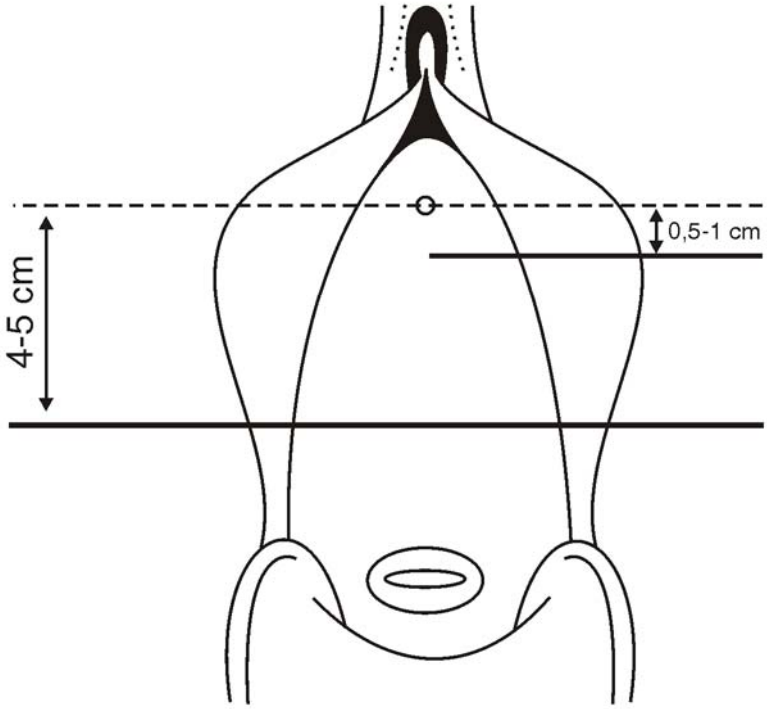
the **strength of the program** is that everything is **evidence based** by meticulous documentation, extensive database, prospective research, individual follow-up over years and consequent analysis of the results according to scientific parameters

though, after all those 25 long years of hard work, we have developed **feasible solutions** for all the problems involved in the surgical management of the obstetric fistula there is still room for perfection

for **prevention**: who is willing to build the first road, the first school and the first hospital in order to reach the ultimate goal in some 100 years from now: **a network of functioning obstetric care** so that there will be safe motherhood for any woman wherever she lives; not solely for the privileged in the industrialised world

for **treatment of the hundred thousands of obstetric fistula patients**: who is willing to provide the funds to strengthen the existing centers and to set up new centers and who is willing to fund the training of highly qualified personnel in the surgical management

figure 1



continence/closing mechanism: frontal

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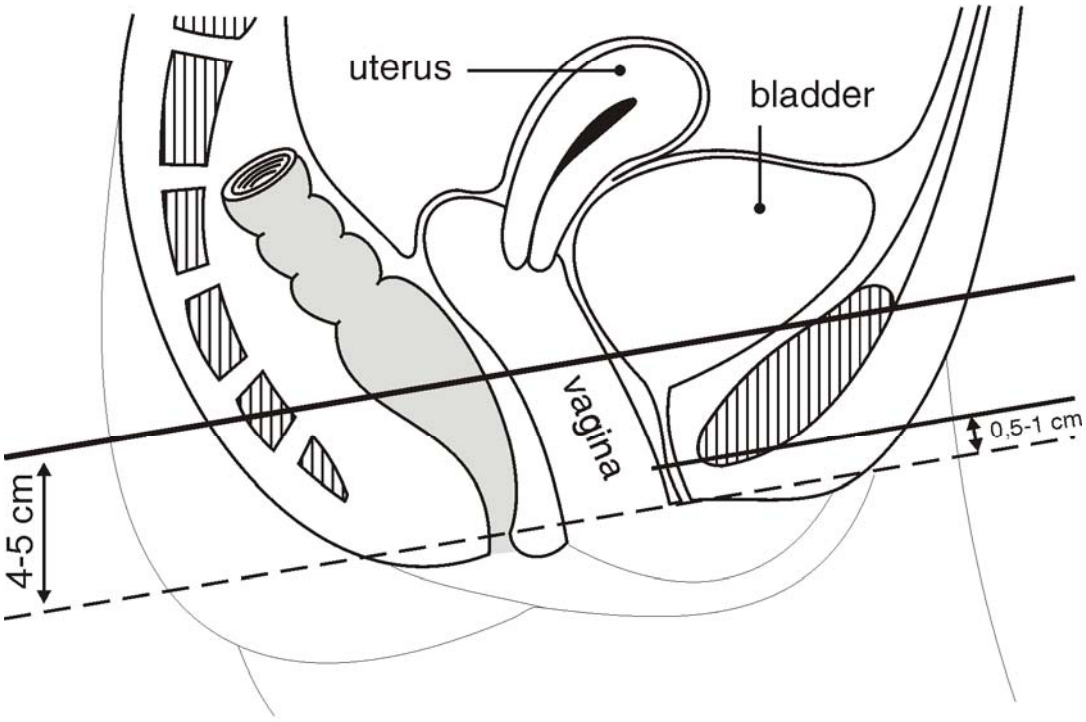
figure 2



continence/closing mechanism: sagittal

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introduction
the obstetric fistula is as old as mankind and constitutes a social disaster of the highest order; due to the continuous urine leakage with offensive smell these patients are ostracized from their own community if nothing is done and loose all dignity, as a woman and as a human being, with progressive downgrading medically, socially, emotionally and mentally
the variety of the complex trauma of the obstetric fistula is enormous: from a minute fistula with minimal tissue loss to a cloaca in an empty pelvis with extensive intravaginal lesions and (sub)total loss of all the intrapelvic tissues, extravaginal lesions, urine-induced lesions, neurologic lesions and systemic lesions
the only rehabilitation into society is by **successful closure** of the fistula; however, this is not simple considering the extent and the immense variety of the trauma
though prevention of the obstetric fistula is not possible for another century, **prevention of the social disaster** is very well feasible by the **immediate management** by catheter and/or early closure; **no need to become an outcast**
this VVF Project aims to have an impact by providing a VVF-repair service, by establishing VVF centers, by training all kinds of doctors, nurses and paramedical personnel and by providing training materials with the emphasis on keeping it simple, safe, effective, feasible, sustainable and payable under African conditions

philosophy of the project
to provide a professional service concentrating upon the immediate (surgical) management of the obstetric fistula patient
to bring the service towards the patients which means multiple “small” repair centers within their own community throughout Africa and not a single white elephant in the capital
to work for or in close collaboration with the government in order to have an impact upon the obstetric fistula as a major public health problem
to ensure optimal comprehensive care: repairs by the surgeon and rehabilitation if needed by the social workers in close cooperation
to concentrate on the repairable fistulas and especially on the immediate management as a priority considering the scarcity of human resources, finances and available infrastructure
to make a clear statement during the whole management process about further surgical inter ventions; it does not make sense to operate forever on the incurable patients
to demarcate the responsibilities: once the surgeon has done his job <closure of the fistula to the best of his knowledge, conscience and expertise> in the end it is the patient herself who is responsible for her life; the surgeon is just the surgeon, nothing more; and the surgery alone consumes all his energy

long-term objectives
to establish a lasting VVF service with ultimately the total eradication of the obstetric fistula, first in Nigeria but later on also in the rest of Africa and the whole world
to keep the existing expertise available for present and future fistula surgeons

short-term objectives
to further upgrade the repair and training services in the existing centers and to start new centers; masterplan: to establish a VVF-repair center in each of the 36 states of Nigeria and to have a VVF-training center in each of the 6 geopolitical zones of Nigeria; with a population of at least 170 million people
to train doctors, nurses and other health personnel in the complicated (surgical) management of the obstetric fistula
to produce training materials and surgical handbooks with in-depth description of anatomic tissue losses, classification of vvf and rvf, description of continence mechanisms, immediate management, step-by-step operation techniques of fistula and (postrepair) intrinsic/stress incontinence etc
to conduct clinical scientific research, to establish a comprehensive database and to prepare evidence-based scientific articles

achievements

individual VVF-repair centers (see annexes)

in **1984** the project was started in Katsina State in Babbar Ruga Hospital which is still functioning as the base for the whole project where so far 12,017 VVF/RVF-repairs have been performed and which has been developed into an (inter)national VVF-training center since 1987; besides this there are smaller services in Funtua, Malumfashi; Kankiya, Daura and Katsina itself by doctors who have been trained in the project

in **1990** the VVF-repair service and VVF-training center was started in Kano State in Laure Fistula Center in Murtala Muhammad Specialist Hospital where 7,871 VVF/RVF-repairs have been performed so far; besides this, there is a smaller service in Danbatta and Wudil by doctors trained within the porject

in **1994** a VVF-repair service was started in Sokoto State in Specialist Hospital and later shifted to Maryama Abacha Women and Children Hospital where 2,614 VVF/RVF-repairs have been performed so far

in **1996** a VVF-repair service was started in Jigawa State first in Hadejia and later shifted to Special VVF Unit in Jahun Hospital where 2,089 VVF/RVF-repairs have been performed

in **1996** a VVF-repair service was started in Kebbi State first in the Specialist Hospital and later shifted to Special Fistula Hospital where 1,508 VVF/RVF-repaires have been performed

in **1998** a VVF-repair service was started in Zamfara State in Faridat Yakubu VVF Hospital in Gusau where 1,026 VVF/RVF-repairs have been performed

in **1998** a VVF-repair service was started in Kaduna State in Kofan Gayan Hospital in Zaria where 817 VVF/RVF-repairs have been performed

in **2003** a VVF-repair service was started in Ebonyi State in Southern Nigeria (where the need is as big as in northern Nigeria) in Ebonyi State University Teaching Hospital in Abakaliki where now a special VVF-hospital is under contruction

in **2008** a VVF-repair service was started in Yobe State in the Federal Medical Center in Nguru which has to be developed further

in 1996 in a tripartite agreement between Katsina, Maradi and Zinder Governments it was decided to work closely together with République du Niger

in **1996** a VVF-repair service was started in Department de Maradi in Centre Hospitalier Départemental in Maradi

in **1998** a VVF-repair service was started in Department de Zinder in Maternité Central in Zinder where later on a special VVF unit was constructed

in **2004** a VVF-repair service was started in Department de Niamey first in Centre Hospitalier Régional de Poudrière and later shifted to Hôpital National in Niamey; a new special VVF Hospital is under construction

the day-to-day running of all these centers is done by doctors and nurses who have been trained extensively by the chief consultant within the project; in order to maintain our state-of-the-art standard, to help with the highly complicated surgery and to supply on-the-job training for doctors and nurses the chief consultant + team visits these centers on a **regular base**

traveling rhythm
we continue our regular visits to all the Nigerian centers on weekly tours of 1,200-1,500 km on the extremely dangerous and long roads of Nigeria
on our irregular visits to République du Niger the roads are even longer and more dangerous

VVF-training centers

in **1987** a start was made with training doctors and nurses and other health personnel in the noble art of the (surgical) management of the obstetric fistula in Katsina State in Babbar Ruga Hospital which was further developed into an (inter)national Teaching Hospital

in **1990** right from the beginning Laure Fistula Center in Kano State was involved in our (inter)national training programme

VVF-rehabilitation centers

for good functioning of both services there has to be a clear separation between surgery and rehabilitation; a surgeon is not a social worker and a social worker not a surgeon

in **1990** right from the beginning the existing Kwalli Center in Kano State has been used and further developed into a major rehabilitation center with a capacity of 50-70 beds; this is separate from Laure Fistula Center but in the neighbourhood for good cooperation

in **2006** in Kaduna State a small rehabilitation center was built on the same compound as Kofan Gayan Hospital in Zaria

in **2007** in Katsina State a large 64-bed high-quality VVF Rehabilitation Center was constructed and inaugurated opposite and outside Babbar Ruga Fistula Teaching Hospital; separate services but with good cooperation

activities (see annexes)

VVF-repair and -training centers
in 2008 a VVF-service was started in Federal Medical Center Nguru in Yobe State making a
grand total of 12 VVF-repair and 2 (inter)national VVF-training centers

surgery
over the year a total of 2,350 procedures were performed in the 12 different centers making a
grand total of 29,684 operations: 27,097 VVF-repairs and 2,587 RVF-repairs

postgraduate training
over the year a total of 13 doctors and 5 nurses were trained making a
grand total of 718 persons: 321 doctors, 326 nurses and 71 other persons

workshops
the consultant surgeon + team participated in 2 workshops in Nguru and Niamey making a
grand total of 24 workshops

rehabilitation
in Kaduna, Kano and Katsina State there are functioning rehabilitation centers making a
grand total of 3 major rehabilitation centers

research
this is a continuous process; the intention was, is and will be to make complicated things simple, safe, effective, feasible, sustainable and payable under African conditions
… and we were able to develop **evidence-based solutions for each and every problem**

database
a comprehensive database has been developed where the chief consultant has entered his personal obstetric fistula experience consecutively from the very first to the last patient with up to 256 parameters per patient

training material/handbook
a new handbook **obstetric fistula surgery; art and science** has been published in order to help other surgeons and can be ordered at info@printmarkt.eu

state-of-the-art surgery
each fistula needs its own specific customized approach as based on a careful assessment of the qualitative and quantitative amount of tissue loss: a combination of science and art
based upon a scientific classification state-of-art operation principles and techniques have been developed for each type with **evidence-based prognosis** as to healing and continence

export of expertise to the industrialized world
since the chief consultant surgeon is in the unique position to study the anatomic tissue loss of the pelvis floor structures and the urine/stool continence mechanism in all its stages, it is high time to export his insight and evidence-based experience to the industrialized world especially about topics such as genuine urine stress incontinence and sphincter ani rupture as well as 3° total cervix prolapse

funding
basically the project is funded by the Federal Government and by the individual State Govern ments but this is not sufficient
further funding came from several organizations and individuals; with due repect to all, it has to be stressed that without the financial help of the SK Foundation this project could not have come off ground and would have never reached its present dimensions and importance; unfortunately, they stopped by the end of 2007 and **we are in dire straits**
memorable event: the office of the chief consultant burnt out completely and was totally renovated together with pre- and postoperative wards and construction of a new theatre complex in Babbar Ruga Hospital by the Service to Humanity Foundation of Her Excellency Hajiya Fatima Ibrahim Shema, wife of the Executive Governor of Katsina State

new nation-wide development
the Federal Ministry of Health, the Federal Ministry of Women Affairs and the individual State Governments are becoming more and more involved in the project
a national strategy to treat and eradicate the obstetric fistula has been finalized; now it is waiting for implementation
plans to construct a National VVF Hospital in Abuja have been approved

new world-wide development
at last we were able to form our own **I**nternational **S**ociety of **O**stetric **F**istula **S**urgeons and held our first ISOFS conference in September 2008 in Addis Ababa in Ethiopia; we would like to develop it further into a real professional organization

strength of the project
its **rare meticulous evidence-based complete documentation** by individual electronic systematic examination and operation reports, electronic database with almost 3,000,000 entries, real prospective research, more than 150,000 digital and other photographs, some 50 hours of digital video takes of operation techniques, long-term follow-up over years, real scientific classification and 25 annual reports etc etc for the whole world to see

main constrain of the project
we desperately need a **new major sponsor**

conclusion
though there is continuous improvement in the quantity and quality of this project in terms of service, training and research there is a long and difficult road in front of us

kees waaldijk MD PhD
chief consultant surgeon
31st of December 2008

fistula surgery 1984-2008

	ebonyi		jigawa		kaduna		kano		katsina		kebbi		sokoto		zamfara		yobe		rép niger		
	VVF	RVF	VVF	RVF	VVF	RVF	VVF	RVF	VVF	RVF	VVF	RVF	VVF	RVF	VVF	RVF	VVF	RVF	VVF	RVF	**total**
1984	-		-		-		-		83	6	-		-		-		-		-		89
1985	-		-		-		-		196	20	-		-		-		-		-		216
1986	-		-		-		-		260	18	-		-		-		-		-		278
1987	-		-		-		-		318	7	-		-		-		-		-		325
1988	-		-		-		-		353	31	-		-		-		-		-		384
1989	-		-		-		-		464	21	-		-		-		-		-		485
1990	-		-		-		222	25	416	29	-		-		-		-		-		692
1991	-		-		-		248	17	195	4	-		-		-		-		-		464
1992	-		-		-		348	27	529	34	-		-		-		-		-		938
1993	-		-		-		416	35	488	62	-		-		-		-		-		1,001
1994	-		-		-		373	43	496	45	-		42	-	-		-		-		999
1995	-		-		-		373	51	537	51	-		161	11	-		-		-		1,184
1996	-		86	-	-		311	37	562	60	41	-	98	5	-		-		66	2	1,268
1997	-		211	4	-		295	38	513	55	107	2	181	14	-		-		33	2	1,455
1998	-		185	5	42	4	278	28	416	60	37	4	288	34	30	6	-		43	4	1,464
1999	-		30	3	37	3	280	36	441	62	80	5	238	12	64	3	-		49	2	1,345
2000	-		204	7	102	7	283	41	420	60	108	4	134	16	102	5	-		69	7	1,569
2001	-		320	27	80	1	415	41	515	55	98	4	157	9	65	5	-		74	5	1,871
2002	-		383	26	44	2	464	49	453	41	113	3	144	7	42	3	-		82	3	1,859
2003	48	5	245	15	39	1	376	52	475	51	96	4	151	7	35	4	-		56	3	1,663
2004	24	2	159	17	59	5	410	33	496	64	65	2	119	6	22	-	-		115	8	1,606
2005	12	-	117	9	31	4	507	39	525	47	208	5	303	22	145	3	-		79	6	2,062
2006	10	2	5	-	65	19	368	91	508	83	156	5	176	17	147	2	-		161	8	1,823
2007	11	1	61	3	114	4	510	97	602	117	170	6	90	5	166	2	-		150	5	2,114
2008	75	3	83	5	146	8	555	59	584	89	168	7	159	7	175	3	37	8	164	15	2,350
total	**180**	**13**	**2,089**	**121**	**759**	**58**	**7,032**	**839**	**10,845**	**1,172**	**1,447**	**61**	**2,441**	**173**	**993**	**33**	**37**	**8**	**1,141**	**70**	**29,512**

total VVF-repairs and related operations: **26,963** **+** in workshops 134 **=** **27,097**

total RVF-repairs and related operations: **2,548** **+** in workshops 39 **=** **2,587**

grand total **29,684**

success rate at VVF closure: 90% per operation at early closure: 95% per operation

success rate at RVF closure: 85% per operation

wound infection rate: < 0.5%

postoperative mortality rate: < 0.5%

final success rate (after one or more operations): > 97%

final severe **incontinence rate** after successful closure: 2-3%

operations chief consultant 1984-2008

	VVF	RVF	total
Nigeria			
ebonyi	17	5	22
jigawa	27	4	31
kaduna	444	71	515
kano	5,156	817	5,973
katsina	8,731	1,104	9,835
kebbi	186	25	211
sokoto	1,008	142	1,150
yobe	23	4	27
zamfara	204	20	224
République du Niger			
maradi	81	8	89
niamey	80	11	91
zinder	210	22	232
Ethiopia			
addis ababa	27	13	40
yirgalem	5		5
Kenya			
machakos	13	2	15
Tanzania			
dar es salaam	51	7	58
mwanza	14	2	16
Burkina Faso			
dori	18	3	21
Holland	6	2	8
total	**16,301**	**2,262**	**18,563**

obstetric fistula training 1987-2008

this is one of the only two training centers in the world where formal training is being practiced and has become a corner stone in the project

however, training is energy intensive and time consuming; **2-3 operations less a day** are performed

the objectives of the training are to demonstrate/learn the complex trauma of the obstetric fistula and the noble art of its (surgical) management under primitive African conditions with special attention to the pelvis floor anatomy; spinal anesthesia is included in the training and each trainee is given a hand-out

a grand total of 718 doctors, nurses/midwives, other highly educated persons and paramedical staff were trained/attended our training program:

a total of **321 doctors**
- 134 general doctors with 3 years of surgical experience
- 153 consultant gynecologists/surgeons/urologists
- 32 senior registrars in gynecology/obstetrics
- 2 senior registrars in anesthesia

a total of **326 nurses/midwives**
- 232 pre- and postoperative nurses/midwives
- 78 operating theater nurses
- 16 anesthetic nurses

a total of **4 other academic persons**
- 2 anthropologists
- 1 physiotherapist
- 1 sociologist

a total of **7 medical students**

a total of **20 paramedical persons**

a total of **40 social workers**

though the majority of the trainees come from Nigeria and other parts of Africa, we have them also from USA, Europe, Asia and Australia; so from all the 5 continents

the training of doctors is **totally individually in a slow step-by-step process** since the variety of the obstetric fistula is immense, there is real tissue loss, the anatomy and physiology complicated, the access to the operation field limited and the handling of instruments difficult; the trainee doctor can only be taught the basic principles of this type of reconstructive surgery

in sharp contrast with many things, if one wants to learn the **science and noble art of obstetric fistula surgery** this cannot be done in the USA but one has to come to Africa where the action is together with the real expertise in the hands and minds of few dedicated fistula surgeons

training module

evidence-based as practiced in the national vvf project nigeria

first
selection of an **obstetric fistula management team** consisting of a doctor, an operation theatre nurse, an anesthesia nurse and two pre- and postoperative nurses who are interested and willing to provide a service for the obstetric fistula patients

second
training of the complete team in an **established obstetric fistula training center** with a high turn-over of patients and a high number of repairs
for the doctor 6-8 weeks initially
for the nurses 4 weeks

third
organizing a 5-day workshop to operate a large number of patients in combination with lectures as co-facilitated by the consultant trainer + team for advocacy_publicity that something can be done and to start the obstetric fistula service in that area

fourth
the team starts working on its own with the simple fistulas which they must be able to handle themselves **confidently** after their initial training

fifth
the consultant trainer + team come from time to time for **on the job training** and to handle the more complicated fistulas and to select more staff for training

sixth
after 50-100 personal repairs, the doctor should come for advanced training to the obstetric fistula training center for 4-6 weeks in order to boost his expertise

seventh
the doctor continues his own surgical program and the consultant trainer + team come from time to time for further on the job training, to assess the service and to handle the difficult fistulas

eight
at any time the doctor comes for further training of 2-4 weeks whenever he thinks he needs more training

ninth
after 350-400 repairs and if feasible and if there is a need, the doctor should come to the training center for further **advanced training** to become a **future trainer**

tenth
at any time, be (s)he a doctor or already a trainer, whenever there is a need, (s)he should appeal and come for further training to the established training center

workshops have low value for the initial training but high value for (more) experienced fistula surgeons on specific topics such as postrepair incontinence and definitely value in advocacy and helping large numbers of patients within a short time.

performance of trainees 1984-2008

the statement that the trainee doctors are not doing anything after their training cannot be confirmed though we have lost contact with most of them

Dr Said Ahmed	4,000 repairs
Dr Marietta Mahendeka	3,000 repairs
Dr Immam Amir	3,000 repairs
Dr Kabiru Abubakar	2,000 repairs
Dr Halliru Idris	1,500 repairs
Dr Sa'ad Idris	1,000 repairs
Dr Hassan Wara	950 repairs
Dr Khisa Wakasiaka	800 repairs
Dr Lucien Djangnikpo	800 repairs
Dr Abdulrasheed Yusuf	750 repairs
Dr Zubairu Iliyasu	750 repairs
Dr Lawal al Moustapha	700 repairs
Dr Abdoulaye Idrissa	600 repairs
Dr Aliyu Shettima	450 repairs
Dr Idris Abubakar	450 repairs
Dr Julius KIIRU	450 repairs
Dr Fred Kirya	450 repairs
Dr Meryl Nicol	400 repairs
Dr Moses ADEOYE	350 repairs
Dr Jabir Mohammed	300 repairs
Dr Odong Emintone	300 repairs
Dr Aminu Safana	150 repairs
Dr Isah Shafi'i	150 repairs

other trainees: no data available

documentation + fistula research 1984-2008

documentation
the strength of the project is the complete systematic meticulous documentation by over 18,500 individual computerized comprehensive reports of history, findings, operation procedures and evidence-based results of each patient (from the very first to the last in a consecutive way) combined with prospective studies; as well the findings are documented by schematic drawings and some 40,000 full-color slides and 75,000 full-color digital photos and the different operation techniques by some 80-100 hours of full-color analogous/digital videotapes

the patient gets her own card in a plastic map with date and type of operation which she presents any time she comes for follow-up; at any postoperative follow-up, normally 5x from 2 wk up to 6 mth but even years later, the findings are written down on the hard copy and later entered into the comprehensive computerized database which contains up to 256 different parameters per patient

from time to time an analysis is made of the evidence-based results to draw sensible conclusions about the operation techniques and the project as a whole

the documentation is time consuming and takes stamina but without documentation there is no feedback and no proof

research
this is a continuous process, first in a retrospective way resulting in a PhD thesis at the University of Utrecht in 1989 when already a classification, clinical data, hyponatremia due to high oral intake, male:female sex rate of (stillborn) infants of 2:1 etc etc were presented; but later on, only in a **prospective evidence-based** way

only by clinical research we came far and found **scientific, theoretic and practical** solutions for each and every problem encountered resulting in a long list:

minimum surgery; immediate active management by catheter and/or early closure; ?why become an outcast by passive laissez-fair?; preoperative high oral fluid intake; no routine antibiotics; spinal anesthesia; the vagina as route of choice; exaggerated lithotomy position; good access by episiotomy(ies); scientific classification of VVF; scientific classification of RVF; one-layer bladder closure, water-tight; no MARTIUS fibrofatty pad graft; two-layer rectum closure, air-tight; half-open adaptation of anterior and/or posterior vagina wall; circumferential repair by end-to-end vesicourethrostomy of type IIAb fistulas; continent urethra reconstruction; a variety of rotation/advancement flaps; end-to-end adaptation of sphincter ani rupture; postoperative high oral fluid intake; vaginoplasty in vagina atresia; bladder drill as conservative treatment of stress incontinence; urethralization and fasciocolposuspension in severe total (postrepair) stress incontinence; meticulous repair of endopelvic fascia to reduce postoperative stress incontinence; indwelling bladder catheterization of postpartum atonic bladder; immediate mobilization; a bit of salt in the preoperative fluids to prevent hyponatremia; active mobilization to prevent contractures in drop foot etc etc

export of insight and techniques to the industrialized world
it is high time for our insight and **state-of-the-art** techniques to be exported to the industrialized world: physiologic vagina incisions, stress incontinence, sphincter ani rupture, total 3° cervix prolapse, live functional pelvis floor anatomy/physiology etc

early marriage/childbirth
has **nothing** to do with **the obstetric fistula**, only with **obstetric care**; do **not use** the **wrong** argument for the **right** cause

hypocrisy
if **one cannot prevent early childbirth in his own country** (480,000 in the US in 2002, without a single fistula) do not come to Africa telling people there what to do; first **stay at home and clean up your own mess**

1984 right from the start **high oral fluid intake** pre- and postoperatively

1984 right from the start **active mobilization** of all patients also preoperatively

1984 right from the start individual **operation reports**

1984 right from the start **immediate postoperative mobilization** of patient

1984 right from the start **exclusively vaginal approach** for vvf and rvf

1984 till today continuous clinical research into the **mechanism of urine (in)continence** in the female in order to prevent and to treat postrepair incontinence; this was **solved with consequences for genuine intrinsic_stress incontinence**

1984 research into **yankan gishiri** resulting into presentation about 577 patients

1985 systematic issuing cards to patients

1985 systematic **one-layer bladder closure**

1985 first circumferential repair of circumferential fistula

1985 first early closure

1985 systematic photographic documentation

1985 spinal anesthesia with bupivacaine 0.5%

1985 fixation of martius fibrofatty graft to bilateral arcus tendineus fasciae in order to prevent postrepair incontinence

1985 posterior vagina wall reconstruction by skin rotation flap from buttocks

1985 peritonization of repair

1986 elevation of bladder neck by pubococcygeus muscle graft/sling for incontinence; however, not further developed since a non-physiologic procedure

1986 to 2005 anorectum + sphincter ani reconstruction + perineal body repair; according to insight into stool continence mechanism in the female

1986 bladder fixation as first stage in **IIBb** fistulas

1986 is it **hyponatremia?** immediately postoperatively; actually the fitting is probably **eclamptic** due to rebound effect on blood pressure after spinal anesthesia

1986 circumferential defect in drawings

1987 new postoperative ward

1987 postmeasles noma vaginae with extensive type IIBa or IIBb fistula

1987 first **urethralization + pubocervical fascia fixation to arcus tendineus fasciae** for incontinence; however, its importance not understood at this time; years later this would become theoretically and practically the technique of choice

1987 postrepair incontinence healed completely by pregnancy

1987 start with **immediate catheter treatment**; conclusion now after **2,250** catheter treatments: if by **mass campaign** this regimen could be **implemented** that a FOLEY Ch 18 catheter is inserted immediately the moment the leaking of urine is manifest in **any woman affected** this would **cure at least 25%** of the patients and would have a **major impact** since it is **more than all the operations** of all fistula surgeons in the world combined; if implemented it will **cure a minimun of 25,000 women a year**

1987 minute fistula with intrinsic/stress incontinence

1988 prospective study role of martius fibrofatty graft in preventing incontinence

1988 bladder stone removal + repair in same session

1988 disruption of rectum stricture in proximal type **Ib** fistulas

1988 systematic **prospective VVF classification: I, IIAa, IIAb, IIBa, IIBb and III**; so far it is the **only scientific classification** as based on qualitative and quantitative tissue loss of the closing/continence mechanism with **consequences** for **operation technique** and **prognosis** as to **healing and continence**; the longer the author uses this classification the more **valuable** it becomes

1988 nonintentional vvf-repair during pregnancy; turned out to be almost bloodless and highly successful

1989 anterior vagina wall reconstruction by skin-mucosa rotation labia flap

1989 PhD degree in the obstetric fistula at University of Utrecht with peer review by 5 prominent professors from 3 different universities (personal experience promoter: some 1,000 repairs) with general and specific objectives, epidemiologic base line data, preoperative preparation, spinal anesthesia, operation techniques, postoperative care, **evidence-based** results, VVF classification in **775 consecutive patients** with specific surgical recommendations and recommendations from a public health viewpoint

1989 more extensive systematic history

1989 period between giving spinal anesthesia and operation begin reduced to 10 min

1989 fixation of avw (+ pubocervical fascia) in order to prevent incontinence

1990 comprehensive **plan for a VVF-service for (Northern) Nigeria and (West) Africa)**; sent as proposal to who, undp, unfpa, large ngo's and several governments; however, **nobody interested** since it is not prevention but curative surgery

1990-92 phasing out of martius fibrofatty graft since it did not contribute to healing and to continence as **evidence-based conclusion** of a prospective study

1990 grading of **urine incontinence** as **grade I** only leaking urine on cough/standing up, **grade II** also leaking urine whilst standing/walking and **grade III** leaking almost continuously whilst lying/sitting/standing/walking with(out) spontaneous miction

1990 advancement/circumferential bladder fixation as first stage in **IIBb** fistulas

1990 systematic urethra length and position at operation end

1990 start of systematic **circumferential dissection** and **circumferential repair (end-to-end vesicourethrostomy)** of **circumferential fistulas**; this is the theoretical and practical solution of this type of fistulas: the philosophy is to reconstruct the functional anatomy so that normal physiology will be restored

1990 neourethra from anterior bladder wall; however, it did not function as expected in subsequent repairs

1990 technique for female epispadias: so far 10 patients treated who all became totally dry/continent

1990 FOLEY Ch 18 as catheter of choice

1990 peritonization whilst avw left open since no avw left or everything fixed

1991 successful **vaginal ureter implantation** in ureter fistula type **III**

1991 systematic documentation of urethra length, elevation and bladder capacity

1992 first edition of the **obstetric fistula handout (manual) for trainees** which was continuously revised once or twice a year according to the latest insight/experience resulting in 25 editions

1992 height of patient; however, what has height to do with the obstetric fistula?

1992 first H incision, urethra reconstruction, pubocervical fascia + avw fixation in fistulas type **IIBa**; years later this would become the technique of choice

1992 bladder prolapse is bladder base prolapse and not bladder roof prolapse since anterior bladder wall fixed to symphysis/anterior abdominal wall

1992 transverse duplication of bladder neck in multiple small residual fistulas; actually it is transverse repair of pubocervical fascia defect

1992 systematic longitudinal bladder diameter in cm as indication of bladder capacity

1992 perforation anterior bladder wall to create urethra; successful on right indication

1992 circumferential repair for lungu-lungu fistulas

1992 systematic **immediate management by catheter and/or early closure**; the most important contribution to the obstetric fistula; **postponing** this management is **malpractice**

1992 small fistula + scar tissue

1992 clinical and epidemiologic baseline data of 2,500 VVF/RVF patients with special emphasis on the obstetric fistula in cohorts of 100 consecutive patients

1992 stroke during delivery in teenage patients with long-standing symptoms/signs

1993 based upon a prospective study **no longer martius fibrofatty graft at all** since it does not contribute to closure and to continence; actually **all grafting** is a **non-physiologic** procedure

1993 systematic **V**oluntary **M**uscle **T**esting = VMT of peroneal nerve function

1993 avw advancement flap in type **IIBa** fistulas

1993 urachus fistula; only symptoms following cs

1994 systematic distance AB/AU in cm in circumferential fistulas

1994 genuine intrinsic_stress incontinence as healing phase of atonic bladder

1994 handbook **step-by-step surgery of vesicovaginal fistulas**

1993 hypocalcemia during immediate postoperative period

1995 systematic removal of ureter catheters at operation end

1995 longitudinal incision for lungu-lungu fistulas

1995 tunneling for urethra on indication

1995 total loss continence/closing mechanism but full continence after circumferential repair

1995 systematic grading of tissue quality in urethra reconstruction

1995 fistula + atonic bladder

1995 development of vagina stenosis

1996 written **training curriculum** for doctors and nurses in **the (surgical) management of the obstetric fistula**

1996 start of total 3° prolapse operation by cervix fixation

1996 mechanism of those specific fistulas after cs

1996 bilateral ureter prolapse in extensive fistula

1996 vesicocervicovaginal fistula after vaginal delivery following previous cs

1996 vesicocervicovaginal fistula without ever cs

1996 previous abdominal repair complicates further vaginal surgery for residual fistula and/or incontinence

1997 leaking after yankan gishiri only after repair of obstetric fistula

1997 fistula at tip of ^ avw structure

1997 also traumatized bladder dome after obstructed labor; ?how?

1997 yankan gishiri: **scarification/-tomy/-ectomy**

1997 open episiotomy + **objective** stool_flatus incontinence post partum

1998 systematic anteroposterior diameter and pubic arch

1998 yankan gishiri 4x withouit leaking which started after 5th yankan gishiri

1998 ureters inside tissue bridge; due to separate blood supply

1998 if vesicalization of proximal urethra this will **urethralize** under physiologic stress

1998 bladder peritoneum will **epithelize** into vagina mucosa

1998 pubic arch documented in degrees

1999 long-standing atonic bladder

1999 specific postpartum incontinence grade III with specific urethra_euo trauma

1999 start using synthetic nonabsorbable suturing material seralon for avw

2000 systematic **prospective RVF classification: Ia**, **Ib**, **Ic**, **IIa**, **IIb** and **III**

2000 only adaptation of avw according to principles of septic surgery; vagina is **never** sterile

2000 start bilateral fixation pc fascia onto paraurethral arcus tendineus fasciae

2000 start using polyglycolic acid sutures for bladder closure

2000 start systematic **urethralization + dynamic fasciocolposuspension** for post **IIAa** and **IIBa** repair incontinence and for genuine intrinsic_stress incontinence; highly successful; first procedure already in **1987**; over 90% successful

2000 start systematic **urethralization + static fasciocolposuspension** for post **IIAb** and **IIBb** repair incontinence; only 50% successful

2000 uv-stricture + minute fistula or minute fistula + uv-stricture

2000 metromenorrhea due to blocked cervix os

2001 free fascia lata sling in urethra reconstruction; not functioning

2001 first continent urethra reconstruction; new technique

2001 open suprapubic cystostomy in complicated repeat repairs

2001 stab incision to increase proximal urethra length

2002 importance of internal sphincter within anorectum fully understood as the **major** factor contributing to stool continence

2002 fixation of cervix onto atf/atl/internal obturator muscle for total 3° prolapse

2002 systematic episiotomy in skin grease for cosmetic healing

2002 pathophysiology of genuine intrinsic_stress incontinence

2002 chip of pubic bone broken off

2002 inoperability due to excessive obesity; once drastic weight loss then operable

2002 wide 1 cm defect pubic symphysis cartilage

2003 systematic anal reflex testing as function of pudendal nerve; saddle anesthesia

2003 proximal vagina pouch on special indication

2003 intrisinc_stress incontinence + ureter fistula disappears after ureter implantation

2003 needle dissection in early closure

2003 longitudinal **striae** in vagina as sign of pc fascia fiber trauma

2003 urethra between bilateral pc fascia strips

2003 systematic triple fixation of FOLEY catheter

2003 better insight into atonic bladder

2003 start of entering all **relevant** data into a **comprehensive electronic database** with 256 parameters per patient including epidemiologic data, clinical data, operation techniques, classification, evidence-based results, long-term follow-up etc etc in order to perform prospective research

2003 postmeningitis total intrinsic_stress incontinence

2004 masked intrinsic_stress incontinence?? in total 3° prolapse

2004 different terminology: anterior elevation

2004 total bladder avulsion

2004 ureter fistula without ever cs

2004 incontinence cured by 1x rhaphy suture

2004 minute fistula requires large incision

2004 spontaneous healing of saddle anesthesia within 30-40 days

2004 correction of open urethra/euo by bilateral pc fascia fixation

2004 punched defects of pubococcygeus muscle and of internal obturator muscle

2004 congenital malformations + total intrinsic_stress incontinence grade III

2004 fatty degeneration of pubococcygeus muscle

2004 analysis of 1,716 consecutive prospective **immediate management** procedures showed **excellent evidence-based results as to healing and continence** (amer j obstet gynecol; 2004, 191, 795-9) with **secondary prevention** of the woman from becoming an **outcast**; I consider this my best contribution to the obstetric fistula; however, it met/meets a lot of criticism and obstruction;
my counter-question to these critics is: do you let these patients suffer unnecessarily in order to raise funds and/or do you need this longer time to evangelize them

2005 final stage/perfection of **sphincter ani rupture** with anorectum trauma and perineal body rupture according to stool continence mechanism in the female with functional **anatomic reconstruction of internal and external sphincters and support**

2005 prospective prediction of healing and continence at operation end

2005 systematic repair/(re)fixation of pubocervical fascia

2005 start of **systematic pelvis floor tissue loss analysis/documentation**; every piece is falling into its own place

2005 start of systematic continent urethra reconstruction by H incision etc

2005 the **enormous healing power of nature**; surgeons do not heal, they only bring tissue into contact with each other

2005 urge incontinence triggered by scar tissue as ?ectopic pacemaker?

2006 draining scarred ureter fistula tract into bladder

2006 spinal anesthesia by only 3 ml of bupivacaine 0.5%

2006 incontinence mechanism; traction by fixed cervix

2006 continence mechanism and total 3° prolapse

2006 perfection of technique for total 3° prolapse by transverse avw T incision up to cervix; cervix in direct contact with atf/atl/levator ani_internal obsturator muscle

2006 systematic length/width/position/support/tissue quality of urethra_euo in cm etc

2006 theoretical insight into real tissue pathology

2006 spontaneous healing of small proximal rvf without rectum stricture; systematic examination/documentation

2006 correction of all defects

2006 distal fixation, euo rhaphy, uy-plasty etc as **last resort** in incurable incontinence uy-plasty for stabilizing distal urethra_euo

2006 closed urethra_euo rhaphy in postpartum total incontinence grade III

2006 final (in)continence theory + practical implications

2006 circumferential trauma analyzed by anatomic tissue loss; refixation of pc fascia

2006 development of lateroposterolateral vagina stricture

2006 major pc_ilc muscle loss without circumferential repair

2007 stainless steel ruler for **objective measurements in cm/mm**

2007 only correction of defects; **customized individualized repair**

2007 variety of compression/trauma

2007 ectopic pacemaker?

2007 debridement and early closure in the same session; how early can one go?

2008 only what is necessary: **no** longer routine **vagina pack**

2008 handbook **obstetric fistula surgery; art and science; basics** as the first in a series of books in order to describe the complex trauma of the obstetric fistula, the exact pelvis floor tissue loss, the tissue loss of the continence/closing mechanism, physiology of wound healing, classification as based on qualitative and quantitative tissue loss of the closing/continence mechanisms, principles of operation techniques with prospective prediction of results as to healing and continence, the mechanism of urine/stool (in)continence and the principles of incontinence surgery etc etc

2008 systematic **history of eclampsia** since this may interfere with postoperative care; if yes then **5 mg of diazepam on operation day** to prevent eclamptic fits due to blood pressure rebound effect after spinal anesthesia; since this was introduced no more fitting

2008 systematic documentation of gc_at contracture at foot drop

however, one should never be satisfied since there is always room for improvement, specifically if one is a perfectionist

plan for a VVF-service for (Northern) Nigeria

and

(West) Africa

1990

kees waaldijk MD PhD

plan for a VVF-service for Northern Nigeria

I. introduction

The occurrence of VVF (= vesicovaginal fistula = an abnormal connection between the bladder and the vagina resulting in uncontrollable leaking of urine) is as old as mankind and has been a constant source of misery to the women affected.
The cause is in over 90% obstetric-necrotic due to obstructed labor which is not relieved in time, as the woman is in labor for many days in the bush without professional help. Most of them die and only the few "lucky" ones survive this trauma.
Due to sociocultural patterns and lack of health facilities, manpower and professional skill, the VVF continues to be a major sociomedical problem in developing countries. Their number is even increasing because the population is increasing so rapidly without concurrent increase in health facilities. Therefore it will be a major public health problem for many years to come involving mostly young girls/women whose life has been wrecked at a time when it should have had started.
The social implications are far reaching. Due to the constant dribbling of urine along their legs, the wetting of their clothes and the accompanying offensive smell, most communities consider the VVF-patients as outcasts, even more so than leprosy patients. They have to live in so-called gidan mata (women's house) outside the village, as people think the condition is infectious. If no cure is obtained within a short time, their husbands divorce them and they end up as low-cost prostitutes when young and as beggars later on. They really belong to the poorest of poorest people.
They are traveling over long distances from hospital to hospital and from doctor to doctor mostly waiting for years before they can find a surgeon who is willing and able to help them. Until a successful repair has been performed they have to live as social and medical cripples.
Though exceptionally the fistula may heal spontaneously, the majority of VVF-patients can only be helped by surgery, but there are only few surgeons who have the professional skill, not only in the developing countries but also in the industrialized world.
This is a pity, because following a successful VVF-repair these women are completely rehabilitated and accepted by the community as full members.
Also most of these patients have no educational background, come from a very low-income group sothat they cannot pay for their surgery and live in villages where health facilities are either scanty or nonexistent.
In Northern Nigeria with a population of 60-80 million people, there are a minimum of 50,000 VVF-patients (see annex 1), most of them young with their whole life in front, for whom not very much is being done.
see also VVF-initiative by Dr. TAHZIB from Sokoto (annex 2).

II. what is being done now

At the moment there are only two centers in the whole of Northern Nigeria which have a systematic approach to the VVF-problem, viz. Babbar Ruga Fistula Hospital and Murtala Muhammed Hospital.
Babbar Ruga Fistula Hospital is situated outside KATSINA Town in Katsina State. Started in 1984 with this service, this year 1990 more than 500 repairs will be done (annex 3). It has a low-cost operation theater, a high-quality 37-bed postoperative ward and at the moment 4 hostels of 50 beds each are under construction. The main problem is the postoperative care which is far from optimal. It should be used for teaching in what is possible with a minimum budget under very primitive conditions.

Murtala Muhammed Hospital is situated inside KANO Town in Kano State. The main drive behind setting up a VVF-unit in this hospital was the National Council of Women's Societies, Kano State Branch which is deeply involved at all levels (annex 4: report by Mrs. Amina E. SAMBO). Actually this can be called the Kano experiment and should be followed by the other states. Started the end of January 1990, this year at least 250 repairs will be performed (annex 5). It has a reasonably equipped operation theater (though another operation table is highly necessary), a 20-bed well-run postoperative ward and a 50-bed hostel outside the hospital. This unit should be further developed as the **main training center, in the beginning for Northern Nigeria but eventually even as a WHO-Center for the rest of (West) Africa** as it has all the potential: 1) a rich state, 2) a well-disciplined health system, 3) a strong backing up by the NCWS, 4) good accommodation possibilities and 5) good national, international and even intercontinental connections. For this purpose the postoperative unit should be extended to 50 beds in order to cope with over 1,000 repairs a year.

These two hospitals together belong to one VVF-service (as being headed by one surgeon) which already now is the largest project in the world since ever, and this is only the beginning.

However, what is being done here is not enough by far, as there are thousands and thousands of patients not aware that something can be done, and the ones who are aware have to wait many years on long lists before they are operated.

III. what should be done

Considering the tremendous physical, psychologic and social suffering of all these (young) girls/women and the fact that they are completely rehabilitated following a successful VVF-repair, a plan has been made to have an impact upon an almost hopeless situation as follows:

I. to set up three major VVF surgical rehabilitation centers, viz. in KATSINA, KANO and ZARIA which can cope with 500-1,000 repairs each a year to get away with the backlog of thousands and thousands of patients

II. to develop KANO further into the main training center, first for Northern Nigeria and later on as a WHO-center for (West) Africa as it has all the potentials

III. starting from these centers once they have been established to set up small low-cost well-functioning VVF-units throughout Northern Nigeria in (the neighborhood of) the state capitals. These units should be separate from the gynecologic department as the workload there is too much (Dr Ann WARD)

IV. to train at least two Nigerian surgeons a year in each center in this type of surgery in order to train the indigenous doctors in their own health problems; first in these three centers and later on also for the other states

V. to keep proper documentation of medical/social history and operation type and outcome (annex 6, see also the report of the WHO-Experts Committee by J.B. LAWSON 1989)

VI. to compare different operation technics in different fistula types to come to optimal surgical management

VII. to stimulate simple and/or complex field research sothat more factors can be studied

VIII to start mass health education about how to prevent VVF by stressing to the general public by all means of information (newspaper, poster, radio, television, magazine, MAMSER, antenatal clinic etc.) that any woman who is in labor longer than 1 day should be transported as soon as possible to the nearest hospital where a cesarean section can be done

IX. to train the primary health care workers how to diagnose obstructed labor and what measures should be taken, i.e. how to get the woman as soon as possible cesarean sectionized

X. to publish a series of articles in order to make the medical profession aware of the magnitude of the VVF-problem which is not very well understood

XI. to make the general public in the developing world and in the industrialized world aware of the (magnitude of the) VVF-problems to establish a VVF Relief Association

XI. to prepare a VVF-handbook with step-by-step surgical technics with the emphasis on how to deal with the problem under primitive conditions within the limited resources of the developing world, but still preserving the quality of work

XII. to prepare instruction video films about all the operations for the surgical trainees and for other surgeons dealing with the VVF-problem which is **rampant** throughout the whole of Africa

XIII if this project has been established for Northern Nigeria and if it has been functioning as planned eventually to extend it to other parts of (West) Africa where the need is as high as in Nigeria

XIV. St Luke's Hospital (headed by Dr Ann WARD) in ANUA in Akwa Ibom State should have the same function for Southern Nigeria and eventually also for the other parts of (West) Africa as the problem is far too extensive

XV. as the problem is everywhere in the developing world the World Health Organization WHO should come in at an early stage within their program for Safe Motherhood

XVI. also the United Nations Fund for Population Activities UNFPA should consider participation in this project

IV. critical remarks

prevention

The prevention is also surgical, i.e. to relieve any woman with obstructed labor **within 3 hours** by cesarean section from the time labor has become obstructed; this is the time period after which necrosis will develop. Even if it could be achieved that any woman who is in labor for over 1 day is attended at 2nd-line or 3rd-line health care, the number of VVF-patients will increase simply because more mothers will survive for the price of a fistula; now they just die.

It would be the wrong attitude to rely upon prevention only, as it will take many years before an effective system has been established. Still it is important to start with a campaign, as one has to begin somewhere.
This would mean that one needs a network of functioning obstetric units (2nd line health care) throughout the rural areas where a cesarean section can be performed immediately upon arrival of the woman (annex 7). It would also mean a functioning transport system which is able to transport any woman with obstructed labor in time to such an obstetric unit. The problem is not only obstruction of labor, but also obstruction of diagnosis, obstruction of decision taking about what to do with the woman, obstruction in fund raising for transport and medical care, obstruction of transport, obstruction at 2nd line health care and eventually obstruction at 3rd line health care.
Time and education have to take care of establishing a proper functioning network of obstetric units and a functioning transport system and to solve all the other factors. Only in Northern Nigeria 1,875 units are already needed, each serving an area of 320 sq km. How long will this take?
Therefore the priority now should be on training indigenous doctors how to cope with the VVF as it will continue to be major public health problem for at least 50 years to come.

primary health care
The only role primary health care can play in this system is to determine risk factors and to diagnose obstructed labor in time and to organize for the rest.

rehabilitation
As a successful VVF-repair is sufficient to resocialize the patient completely into her own community (Dr Ann WARD; personal experience), it seems irrational to start building rehabilitation centers for other purposes than for surgery.

early marriage
This is part of culture and is difficult to change, and in my opinion does not contribute very much to the prevalence of the obstetric fistula.
If these girls would be married later there would be a shift in getting their fistula later, as their pelvis is too small because of insufficient food intake as a child. After menarche the epiphyseal lines are closing and no further growing of the pelvis takes place. Claims that antimalarials and hematinics during pregnancy (though in itself very good for maternal and child health) will stimulate pelvic growth sothat obstructed labor is prevented are not valid, as there is no scientific base for that. The solution is simple, a cesarean section in time.

health eduction
Not too much can be expected from health education, as even more than 95% of the women with a succesful VVF-repair still stay at home at following deliveries despite repeated written and verbal instructions to go immediately to a hospital as soon as labor pains start; honestly speaking, where should they go?
Health education will only function, provided there are enough secondary health facilities available and if it goes hand in hand with general education; this will take a long time.

V. requirements

The whole project should be aimed at bringing the surgery nearer to the patient within the normal health network and within the limited resources of the developing countries.

a. buildings

preferably the existing government hospitals should be utilized for these VVF-units in order to keep the capital investment as low as possible

needed per unit: one operation theater, one postoperative VVF-ward and a hostel where the patients can wait their turn for operation

b. equipment

no sophisticated high-tech medical equipment as these break down so easily, maintenance mostly is not available and they are very expensive, but equipment which will function reliably even under primitive conditions

a mechanic-hydraulic operation table, a pressure cooker type autoclave, a sterilizer on gas, a gas stove etc.

normal surgical instruments, except for some 3-4 instruments specially designed for VVF-surgery

no general anesthesia as this is too complicated and far too expensive, but spinal anesthesia with a long-acting agent which is simple, effective, safe and cheap

c. materials

normal inexpensive materials like chromic catgut, methylated spirit, acriflavine, gentian violet, gauze etc., but nothing special and expensive

d. personnel

the whole project will stand or fall with the presence of a highly specialized surgeon with experience in VVF-surgery, management, training and developing countries; he has to be the project leader who is responsible for the implementation of the project

otherwise the normal existing health personnel have to be trained

an effort should be made to catch the interest of the indigenous doctors in this type of work; these doctors need at least 2 to 3 years surgical experience before they can be trained

e. transport

a PEUGEOT saloon car is needed to visit the main training centers and the small VVF-units

f. documentation

cameras, videocamcorder, editing machine, film/slide materials, video cassettes etc. are needed for proper documentation and for teaching purposes; and a computer for administration etc.

VI. who is going to finance the project

The largest contribution will be made by the State Governments, as they are responsible for their own health problems, but some help should be given by voluntary organizations based either in- or outside Nigeria; also governments of the industrialized world should contribute something which cannot be financed otherwise by the Nigerian Government(s) within the scope of their developing aid in the form of bi- or multilateral agreements with the Nigerian Government(s) and/or with the voluntary organizations.

The WHO and UNFPA should be involved in the training aspects, in the distribution of documentation and in creating awareness

a. buildings

financed mainly by the respective State Governments as it is their own health and social responsibility; if the government does not have enough money they can ask for help of the voluntary organizations based in Nigeria

b. equipment

this should also be financed by the respective State Governments; but as many of these equipments are not available and some a bit expensive (e.g. an operation table), the voluntary organizations based either inside or outside Nigeria may come in

c. materials

to have a reliable steady supply of the essential materials, the voluntary organizations abroad should help out to make sure that the work can continue without a break; per 1,000 operations some 20,000 to 25,000 US dollars are needed which is very cheap; this includes spinal needles, long-acting spinal agents, methylated spirit, suturing materials, acriflavine, gentian violet, gauze, some special surgical instruments etc.

e. personnel

local salaries should be paid by the respective State Governments as usually in their health program

the salary in hard currency of the project leader cannot be paid by the Nigerian Government; this is where the government of an industrialized country, the WHO or the UNFPA has to come in or a VVF Relief Association sponsored by these organizations

f. surgical handbook

financing by a voluntary organization based outside Nigeria as a one-time project

g. documentation

this could be financed by an International Obstetric Fistula Foundation as a one-time project for cameras, computer etc. and as a continuous project for the materials

N.B. the very best would be if the total non(Nigerian)government financial input could be handled by a professionally headed International Obstetric Fistula Foundation which in itself should be sponsored by the government of an industrialized country and/or the WHO and/or the UNFPA for the following reasons:

a. it is less bureaucratic, takes quicker decisions and works faster
b. one sponsor makes the reporting simpler for the man in the field than several sponsors
c. for book keeping and auditing, several sponsors make it very complicated for the project leader as he is also financially responsible to the Nigerian Government
d. a VVF Relief Association could also stimulate other private sponsors by fund raising
e. as it is a highly specialized project, it needs coordination by people who understand the (surgical) management of VVF very well
d. this project will only have an impact on a long term, and most government projects are for a short period of time; the WHO and UNFPA have also long-term commitments?
e. for external coordination of this project, a VVF Relief Association would be ideal as it deals only with VVF and nothing else

It must be possible for a VVF Relief Association to work out terms with the government of an industrialized country and/or the WHO and/or the UNFPA and other private sponsors to take care of the total external financing of the project; estimated cost some 250,000-300,000 US dollars a year which can be calculated exactly as soon as some organization is really interested.

VII. time-table

To establish one major VVF center will take roughly one year, and for each smaller VVF unit some six months are needed.
With phase-like implementation of this plan together with training of enough indigenous Nigerian doctors, it must be possible to establish a functioning VVF-service for Northern Nigeria within 5 years from the moment an agreement has been signed by all parties involved. Besides a mid-term evaluation to determine if it functions like projected, then after 5 years an evaluation should be done to see if it has been worthwile and to take a decision either to stop or to continue and to extend it to other parts of (West) Africa.

VIII. conclusion

At the moment there are at least 100,000 to 150,000 VVF-women in Nigeria and a minimum of 1,000,000 to 1,500,000 VVF-women in the whole world for whom not very much is being done. They are being treated as outcasts in their own community, and suffer a lot more than others physically, psychologically and socially. With a low budget, under primitive conditions and within the existing health care of Nigeria and other developing countries it is possible to resocialize 85% of these patients completely and to rehabilitate another 10% with stress incontinence (annex 8, thesis WAALDIJK). For this purpose a specialized VVF-service should be created in order to help these patients, first in Northern Nigeria and then in the other parts of (West) Africa. As the starting up of this project involves an external financing of only some 250,000 to 300,000 US dollars a year for the first 5 years, it is high time to give these women the (surgical) attention and care they deserve.

revised 15th of September 1990

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explanation to the VVF-plan for (Northern) Nigeria and Africa

the problem

As the birth canal is too small, the head of the child gets stuck inside the pelvis of the mother. If this is not relieved within 3 hours by a cesarean section, several tissues die and a hole develops in the bladder (obstetric fistula) and in 20% also in the rectum. After the child has died inside the mother the head shrinks and then the child can be borne. Most mothers die from this trauma in the bush simply because there is no help available not even if they are in labor for up to 7 days. Only a few "lucky" ones survive for the price of a dead child and a fistula. Then the real trouble starts. Due to the continuous leakage of urine (and in 20% of stools) from the vagina along their legs, they wet their clothes, bed etc. and they stink. Everybody can see and smell it, and it is something dirty and a shame. They are no longer socially acceptable within their own community from which they are thrown out, starting by their husbands, and they become outcasts even more so than leprosy patients. Also it is a taboo as it is exactly that part of the body which one does not discuss openly. In order to survive they become low-cost prostitutes (10 cents a time) and/or beggars. They really belong to the poorest of the poorest in this world.

which age group

Most of the time it happens at the first labor and thus 70% of these women are younger than 21 years old and 30% even younger than 16, when they develop a fistula. So teenagers with their whole life in front

how many fistula girls/women

In the whole world a minimum of 1,000,000 to 1,500,000 and in Northern Nigeria 100,000; a major public health problem. This is not well-known because it is has been eliminated in the industrialized world

what can be done about it

Only an operation which closes the hole and makes the patient continent. This is very well possible within the normal health system of Nigeria under primitive circumstances and without high-tech equipment (PhD thesis WAALDIJK, 1989)

which consequences has an operation for the woman/society

In 93% of the patients it was possible to close the fistula though in 8% with incontinence. All of them either married again or went back to their original husband; many of them became pregnant and were able to get children. This all happened spontaneously without any special intervention. So a successful operation is a guarantee for a spontaneous total rehabilatation of a healed young woman into her own community, and from an outcast she becomes a normal human being

prevention

Primary, to prevent the occurrence of a fistula, only by a cesarean section in time. In America this problem has been solved by setting up a network of obstetric clinics starting with the first Fistula Hospital in NEW YORK. Unfortunately, this is not yet possible now, but it has to be the ultimate solution.

Secondary, to prevent that these girls/women fall into a bottomless pit socially/medically/psychically, only by a successful operation. This is possible now, and we have to concentrate on it for the time being.
It is a typical problem of the developing world with poverty, malfunctioning health care, insufficient education and the inferior position of the woman

does it make sense to do something on a bigger scale
Does it make sense for the woman? Does it make sense for her society? Does it make sense for the developing world? Does it make sense in the scope of developing aid?

what is happening now on a bigger scale
Not very much, as there are only 4 centers in Africa with a systematic approach, viz. one in Ethiopia, one in Southern Nigeria and two in Northern Nigeria

what is happening in Northern Nigeria, as this is the plan
Northern Nigeria consists of 12 separate States with a total surface of 600,000 sq km and a population of 60-80 million.
Since 1984 there are two centers, one in Katsina State and one in Kano State (together 65,000 sq km with a population of 15-17 million). In total 2,500 operations have been performed in 2,100 patients progressing from 89 operations in 1984 to over 700 operations in 1990. Also three Nigerian doctors could be trained. This means that in 1990 an average of 13-14 women per week could be totally rehabiltated. By the efforts of the NCWS (Nigerian Council of Women's Societies) a National VVF Task Force was established in order to attack this problem from within the community and on Local Government, State Government and Federal Government level.

the pilot phase has ended; what happens with this experience
Time has come to expand from a "small scale" to the whole of Northern Nigeria sothat far more women can be rehabilitated (**see VVF-plan**)

what does this plan aim at
It aims to structurally contribute to this problem by setting up a high-quality VVF-service, step-by-step, under primitive circumstances, within the existing health service(s), within a low budget and without high-tech equipment; all in order to rehabilitate as many women as possible and to have a lasting service for at least 5,000 operations a year

where is the accent
The transfer of knowledge, skill and management, specifically for Northern Nigeria. Not how to operate a fistula in the USA in a university hospital, but what exactly has to be done in a "bush" hospital in Nigeria in order to obtain quality and quantity under primitive conditions. This transfer has to be advisory to the community, the women's organizations and the different levels of government. It also means to train as many Nigerian doctors in the different operation technics sothat they know what they can handle themselves and what not. In the future this all has to be done by the Nigerians themselves with a little help from outside

who is going to set it up
It has to be somebody with the following combination of skills, knowledge and characteristics: 1) who masters the different operation technics perfectly, 2) who can handle the management of the program, 3) who has experience in training, 4) who has experience in developing countries, 5) who knows the culture, 6) who knows about administration, 7) who speaks the language and 8) who is willing to set it up

who is going to finance it
For the biggest part the Nigerian Government itself as they are responsible for their own society; a small part by the community; and what is left then by the government or a big organization in an industrialized country (external financing)

what role could an industrialized nation play
Within the scope of developing aid to take care of that part which really cannot be paid by the developing country itself, viz. the external financing

how much is this external financing for the coming 2 years
A minimum of US dollars 250,000 a year, so in total US dollars 500,000, or some US dollars 125 per rehabilitated woman, as it is feasible to perform 1,500-2,000 operations a year with a total rehabilitation of 30-40 women a week

exactly to what will it contribute
Considering the experience of the last 7 years, it is feasible to expand the program with one State a year, to train at least 3-4 Nigerian doctors a year and to increase the total number of operations up to 1,500-2,000 a year within 2 years and up to at least 5,000 a year within 5 years

evaluation
A continuous evaluation by professionals is necessary to check if the program is implemented as planned sothat at the end of these 2 years a wise decision can be taken either to stop ... or to consolidate and/or extend the program

kees waaldijk MD PhD 25th of May 1990

P.S. **everybody** agrees that real progress is **only** possible by improving the position of the **woman** in this world, and this VVF-plan contributes to that

Annex 1

the incidence/prevalence of VVF in Nigeria

Nigeria has a population of 100-120 million people with a population growth rate of 3.5% a year.
This means that there are at least 6-7 million deliveries a year where the mother survives.

There are three ways to calculate the annual incidence of VVF in Nigeria:

a. In a society where in the referral centers (KANO, Dr DIKKO; SOKOTO, Dr TAHZIB; and KATSINA, myself) there is a maternal mortality rate of 40-60/1,000 and a perinatal mortality rate of 150-200/1,000, one can assume that the fistula rate is at least 1-5/1,000 deliveries where the mother survives.
   This means that the annual incidence is at least 6,000 to 35,000 new VVF-patients.

b. There is roughly an obstructed labor rate of 5%, but only a minority of the women undergo a cesarean section in developing countries. If 1 out of 10 women with obstructed labor survives with a fistula, then the fistula rate is already over 5/1,000 deliveries where the mother survives.
   This means that the annual incidence is more than 35,000 new VVF-patients.

c. In the first half of 1990 some 250 women have been operated in Babbar Ruga Fistula Hospital.
   At least 150 were coming from within Katsina State and were leaking less than 1 year.
   However, still some 200 patients are on the waiting list and many patients in the bush do not know that something can be done.
   This means that in Katsina State the incidence is at least 400 new VVF-patients a year.
   Katsina State has a population of 4-5 million people, and the road system is not too bad.
   As the situation in the other states of Nigeria is not very different from Katsina, the annual incidence rate for the whole of Nigeria is 25 x 400 = 10,000 new VVF patients.
   This is the absolute minimum, and the actual number may be 2-3 times higher.

incidence

If one combines these 3 calculations it is totally safe to state that the annual incidence of those "mothers" who survive the ordeal of obstructed labor for the price of a fistula is a minimum of 15,000 new VVF-patients in the whole Federation of Nigeria.

prevalence

As there are a maximum of 1,500 VVF-patients being operated successfully a year at the moment, and if one assumes the average life span to be 10 years following the fistula, there are at least 135,000 VVF-patients in need of an operation in Nigeria.

conclusion

I would like to stress that one can only give the minimum figures as one needs time to come to the actual numbers.

I myself am very much shocked by these figures, though I know very well that I am still underestimating the magnitude of the problem.

I know as well that many people will start laughing at these numbers, but it would be beter if they would start calculating, N.B. for a society where the maternal mortality rate is at least 100 times higher than in Europe.

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N.B. world-wide incidence and prevalence of the obstetric fistula

based on an incidence rate of 2/1,000 deliveries where the mother survives when there is no easy access to a functioning obstetric unit, i.e. in at least 50 million deliveries a year, the world-wide annual incidence can be calculated at an absolute minimum of 100,000 new VVF-patients

then the world-wide prevalence is a minimum of 1,000,000 to 1,500,000 VVF-patients in need of surgery

amenorrhea in vesicovaginal and rectovaginal fistula

Kees WAALDIJK

abstract

OBJECTIVES: To find out the incidence of amenorrhea in vesicovaginal fistula (VVF) and rectovaginal fistula (RVF).
METHODS: In two fistula centers in Northern Nigeria a menstruation history was taken in 891 consecutive VVF patients in 73 consecutive RVF patients. This was correlated with the fistula duration, and nonfistula causes were looked for.
RESULTS: Out of the 213 VVF-patients leaking less than 6 mth, 162 (76.1%) presented with amenorrhea which was considered to be physiologic. Out of the 180 VVF-patients leaking 6 mth to 1 yr, 82 (45.6%) presented with amenorrhea; in 23 (12.8%) a nonfistula cause was found leaving a fistula amenorrhea in 59 (32.8%). Out of the 498 VVF-patients leaking 1 yr or longer, 131 (26.3%) presented with amenorrhea; in 78 (15.7%) a nonfistula cause was found leaving a fistula amenorrhea in 53 (10.6%). The RVF-patients showed the same trend.
CONCLUSION: The great majority of patients with a VVF and/or RVF were menstruating if the fistula duration was 6 mth or longer, i.e. beyond the period where the amenorrhea was considered to be physiologic. This was even more pronounced if the duration was 1 yr or longer.

introduction

There are controversing reports about the incidence of amenorrhea in vesicovaginal fistula (VVF) and/or rectovaginal fistula (RVF) patients.
Naidu and St George stated that amenorrhea was the rule in respectively India and Northern Nigeria {1, 2}.
Hamlin & Nicholson and Waaldijk claimed that amenorrhea was not commonly associated with fistula in respectively Ethiopia and Northern Nigeria {3, 4}.
This study was proceeded to find out the incidence of fistula amenorrhea.

materials and methods

In two fistula centers in Northern Nigeria, respectively Babbar Ruga Fistula Hospital in KATSINA and Laure Fistula Center in KANO, from patient 1,001 onward any new patient was systematically asked whether she was menstruating or not.
This study consisted of 891 new VVF-patients and 73 new RVF-patients operated consecutively by the author. The fistula was obstetric in origin in 831 (93.3%) of the VVF-patients and in 68 (93.2%) of the RVF-patients.
The 175 VVF-patients treated in this period by inserting an indwelling bladder catheter, with or without suturing, were left out of this study as they were only leaking less than 3 months.

results

VVF

Out of the 891 VVF-patients, 375 (42.1%) presented with amenorrhea at the time of operation.
These patients were divided into 3 groups according to the duration of fistula as presented in table 1:

A. Out of the 213 patients leaking less than 6 mth, 162 (76.1%) presented with amenorrhea which was considered to be physiologic.
B. Out of the 180 patients leaking 6 mth to 1 yr, 82 (45.6%) presented with amenorrhea which was considered to be borderline.
C. Out of the 498 patients leaking 1 yr or more, 131 (26.3%) presented with amenorrhea which was considered to be pathologic.

table 1

duration of leakage	number of patients	amenorrhea
<6 mth	213	163 (76.1%)
6 mth to 1 yr	180	82 (45.6%)
≥1 yr	498	131 (26.3%)
total	891	375 (42.1%)

Group B and C were further analysed for other causes than the fistula, and corrected figures are given in table 2.

table 2
fistula amenorrea in VVF

duration of leakage	number	nonfistula amenorrhea	fistula amenorrhea
6 mth to 1 yr	180	23 (12.8%)	59 (32.8%)
≥1 yr	498	78 (15.7%)	53 (10.6%)
total	678	101 (14.9%)	112 (16.5%)

The nonfistula causes as listed in table 3 were: premenarche, postmenopause, lactation, congenital vagina malformation (patient never menstruated), surgical cause {cesarean section hysterectomy for ruptured uterus, (sub)total hysterectomy for other reasons, repair after which menstruation stopped}.

table 3
nonfistula amenorrhea in VVF

cause	duration of leakage 6 mth to 1 yr	> 1 yr
premenarche		7
postmenopause		20
surgery	10	39
lactation	13	7
congenital malformation		5
total	23	78

In 114 (12.8%) of the VVF-patients there had been or still was a combination of VVF and RVF, but this has not been worked out further.

RVF
Out of the 73 RVF-patients, 30 (41.1%) presented with amenorrhea at the time of operation.
Also these patients were divided into 3 groups according to the duration of fistula as presented in table 4:
A. Out of the 12 patients with a duration of less than 6 mth, 10 (83.3%) presented with amenorrhea

B. Out of the 10 patients with a duration between 6 mth and 1 yr, 7 (70.0%) presented with amenorrhea
C. Out of the 51 patients with a duration of 1 yr or more, 13 (25.5%) presented with amenorrhea

table 4

duration of RVF	number	amenorrhea
< 6 mth	12	10 (83.3%)
6 mth to 1 yr	10	7 (70.0%)
≥ 1 yr	51	13 (25.5%)
total	73	30 (41.1%)

Patients from group B and C were analysed further for other causes of amenorrhea than the fistula.
In only 2 patients of group C another cause could be found, viz. premenarche in 1 and hysterectomy in 1, and corrected figures are given in table 5.

table 5
fistula amenorrea in RVF

duration of RVF	number	nonfistula amenorrhea	fistula amenorrhea
6 mth to 1 yr	10		7 (70.0%)
≥ 1 yr	51	2 (3.9%)	11 (21.6%)
total	61	2 (3.3%)	18 (29.5%)

In all the RVF-patients there had been or still was a combination of VVF and RVF, but this has not been worked out further.

discussion

The results in the VVF-patients clearly showed that the longer the fistula existed the less the incidence of amenorrhea was, even more so when nonfistula causes were deducted.
With a fistula duration of one year or longer, only 53 (10.6%) of the 498 patients presented with a fistula amenorrhea.
The cause of fistula amenorrhea may be hypothalamus trauma (hemorrhage at labor, malnutrition, psychic stress) or loss of functioning endometrium or of uterus/cervix (due to the trauma of obstructed labor).
The results in the RVF/(VVF)-patients showed the same trend, but the number was too small to draw further conclusions.
Even if the 184 VVF/RVF-patients in the 2 groups were combined it would have been too complicated to find out if the incidence of fistula amenorrhea was higher in RVF/VVF-patients. Many patients in the VVF-group had been operated already for a RVF and in the RVF-group for a VVF.
Several patients stated that blood loss at menstruation was less than before they developed the fistula, but only amenorrhea was taken into account.

conclusion

The great majority of patients with a VVF and/or RVF in Northern Nigeria were menstruating if the fistula duration was 6 mth or more; even more so if the fistula duration was 1 yr or longer.
Also, if amenorrhea was encountered, nonfistula causes were responsible in a large proportion of these patients.

amenorrhea in vesicovaginal and rectovaginal fistula

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30th of May 1992

VVF_INCI.02

preliminary incidence of obstetric fistula in Northern Nigeria

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introduction

The numbers of VVF-patients in the world are being underestimated because it is not easy to come to true incidence and prevalence figures. This report is a try and only based upon VVF-patients coming to the hospital for treatment with all the shortcomings of this procedure.

materials

In the first 3 months of 1992, a total of 406 new VVF-patients were seen in Babbar Ruga Fistula Hospital, KATSINA and in Laure Fistula Center, KANO; and already over 300 surgical procedures have been performed.

Katsina State

After 7 years of functioning it is reasonable to claim that there is a fully established VVF-service for Katsina State in Babbar Ruga Fistula Hospital.
Out of these 406 patients, 85 new patients were seen who were KATSINA indigenes and leaking less than 1 year; if continuing like this (and why not?) some 340 patients will be seen in 1992 coming from Katsina State and leaking less than 1 year.
However, still quite a number of VVF-patients (how many ??) will not come forward as they are not aware that something can be done or as they simply do not have the possibility/means of traveling to Babbar Ruga Fistula Hospital. For instance this year a patient came for treatment living in KATSINA Town only 5 km from this hospital, leaking 25 years, never operated and N.B. related to a higher officer of the Hospital Services Management Board of Katsina State; she has been operated now successfully.
According to the latest census there are 3.9 million people in Katsina State.
With an average life expectancy of 50 years, an annual population growth rate of 3.3%, a maternal mortality rate of 1.5% and a perinatal mortality rate of 10%, there will be some 230,000 deliveries this year where the mother survives.
This means that the annual incidence rate of obstetric fistula for 1992 will be at least 1.5 per thousand deliveries where the mother survives, only calculating the patients coming forward for treatment.

Kano State

After 2 years of functioning it is reasonable to state that the VVF-service for Kano State in Laure Fistula Center is not yet fully established.
Out of these 406 patients, 72 new patients were seen who were Kano indigenes and leaking less than 1 year; if continuing like this (and why not?) some 290 new patients will be seen in 1992 coming from Kano State and leaking less than 1 year.
However, still quite a number (how many??) will not come forward, as they are not aware (the service is fairly new) that something can be done or simply as they have no possibility/means to travel to Laure Fistula Center.
According to the latest census there are 5.6 million people living in Kano State.
With an average life expectancy of 50 years, an annual population growth rate of 3.3%, a maternal mortality rate of 1.5% and a perinatal mortality rate of 10%, there will be some 330,000 deliveries this year where the mother survives.
This means that the annual incidence rate of obstetric fistula for 1992 will be at least 0.9 per thousand deliveries where the mother survives, only calculating the patients coming forward for treatment.

What is most disturbing in Kano is that out of these 72 patients 28! were coming from within KANO metropolis, i.e. from a walking distance to many private and government hospitals.
This also shows that the awareness that something can be done is present inside KANO City, but not very great outside KANO City.
If calculated for KANO metropolis the incidence rate is also at least 1.5 per thousand deliveries where the mother survives i.e. only for the patients coming forward for treatment.

conclusions

From the above it is clear that the incidence rate of obstetric fistula in Northern Nigeria is at least 2 per thousand deliveries where the mother survives.
However, only the minimum can be indicated and the true incidence still has to be found.

2nd of April 1992

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VVF_PREV.01

prevalence of obstetric fistula in (Northern) Nigeria

Kees WAALDIJK

introduction

It is important to have some epidemiologic data of VVF sothat we know what to do in terms of planning. There are no reports dealing with the prevalence of VVF.

materials

Based upon studies in Katsina and Kano State it has been found that the minimum incidence rate of VVF is 2 per thousand deliveries where the mother survives.
As the conditions in the whole of (Northern) Nigeria and in the rest of developing Africa are not very much different from the situation in KANO and KATSINA, it is safe to assume that the incidence is more or less the same.

incidence

In Northern Nigeria with a population of 50 million (census 1991), an annual population growth rate of 3.3%, a life expectancy of 50 years, a maternal mortality rate of 1.5% and a perinatal mortality rate of 10% there will be 3 million deliveries this year where the mother survives. This means that for 1992 there will be at least 6,000 new VVF-patients.
For the whole of Nigeria with a population of 90 million there will be 5.5 million deliveries where the mother survives. This means that for 1992 there will be at least 11,000 new VVF-patients.

prevalence

In 1992 there will be a maximum of 1,500 **successful** VVF-repairs in the whole of Nigeria, so already a backlog of minimally 9,500 VVF-patients in need of surgery for 1992.
As 70% of the women develop their fistula below the age of 20 years and with an average life expectancy of 50 years, a VVF-patient will live a mean of 30 years with her fistula if nothing is being done. As she is perhaps more at risk for (urinary tract) infections let us say 20 years.
Taking into account the population of the past (less than at the moment), there are a **minimum of 150,000 VVF-patients in Nigeria in need of surgery** of whom 80,000 to 90,000 are in Northern Nigeria.

future

As there is a population explosion without concurrent increase in health facilities, the number of obstructed labors and the number of new VVF-patients will **increase** every year and as such the prevalence will increase as well.

There is not only obstruction of labor, but obstruction at any level of obstructed labor management such as: obstruction at antenatal care, obstruction at diagnosis, obstruction at decision taking what to do with the woman, obstruction at raising money for transport and medical care, obstruction at transport, and obstruction at primary, secondary and tertiary health care.
The problem is that the prevention of obstetric fistula is highly specialized, i.e. a cesarean section which has to be performed within 3 hours from the time labor has become obstructed.
Only if all the factors involved have been solved, will there be a reduction in the incidence of VVF.

conclusion

The obstetric fistula is still a major public health problem in (Northern) Nigeria and it will take a long time of careful short- and long-term planning to have an impact upon the situation.

2nd of April 1992

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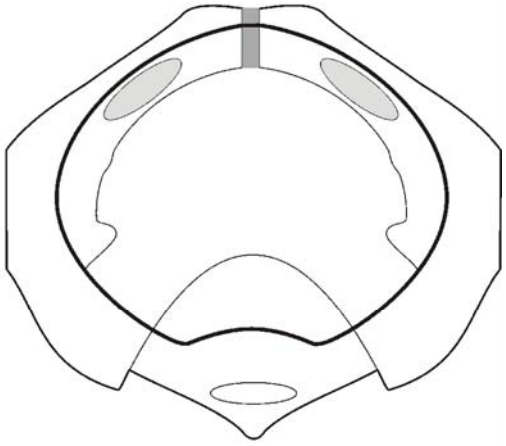
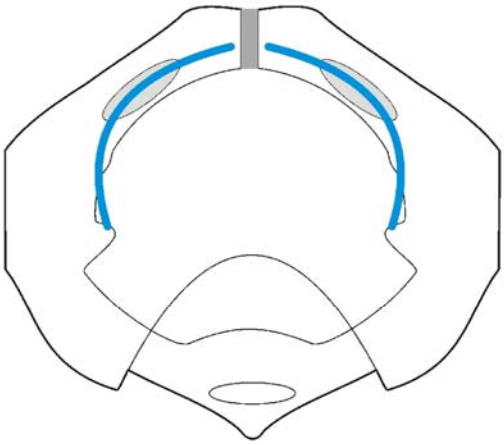
pelvis floor anatomy



pelvis inlet ring



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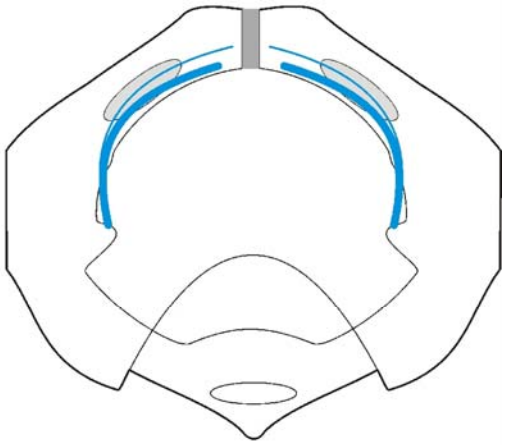
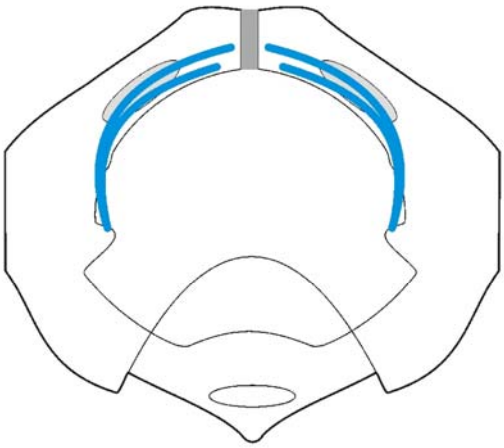
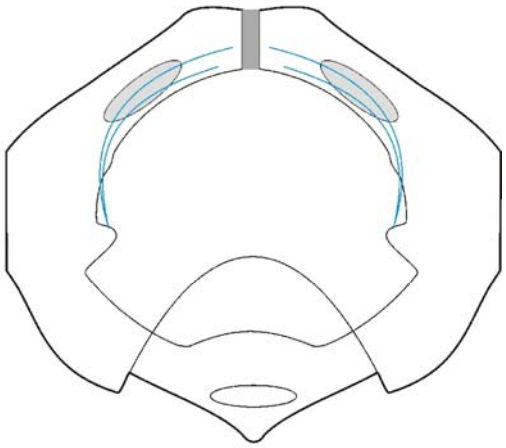


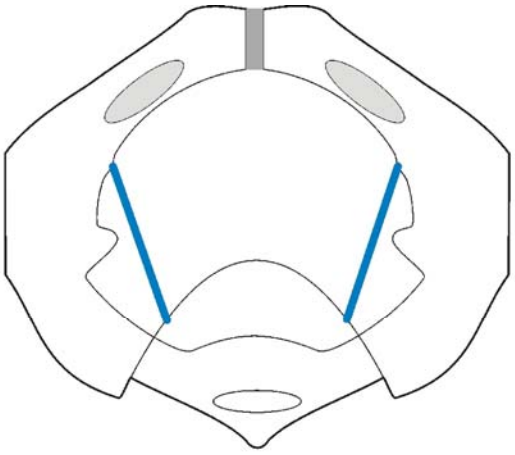
arcus tendineus levator ani muscle = atl



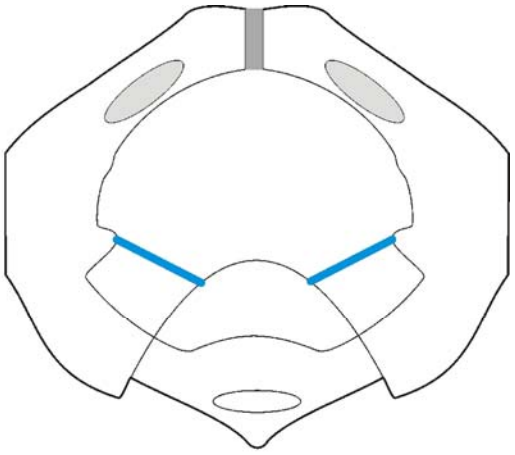
atf + atl



atf + atl



sacrotuberal ligament



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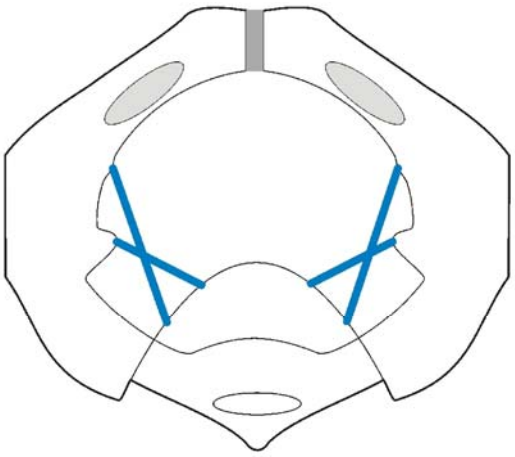
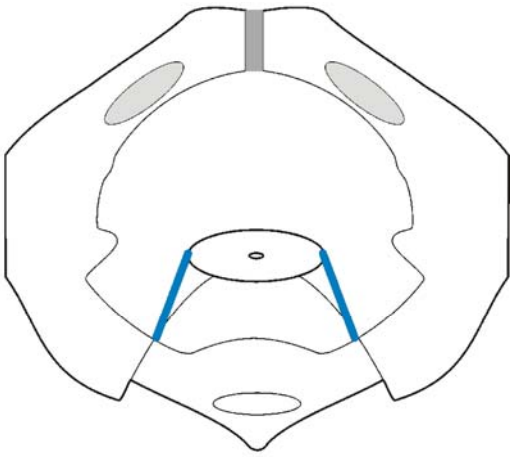
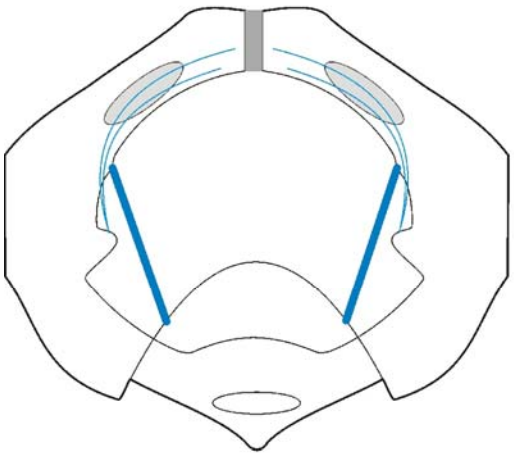


sacrotuberal + sacrospinous ligament



cervix with sacrouterine ligament = sul



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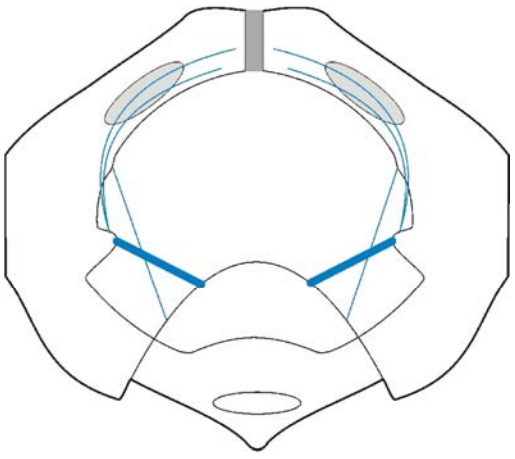

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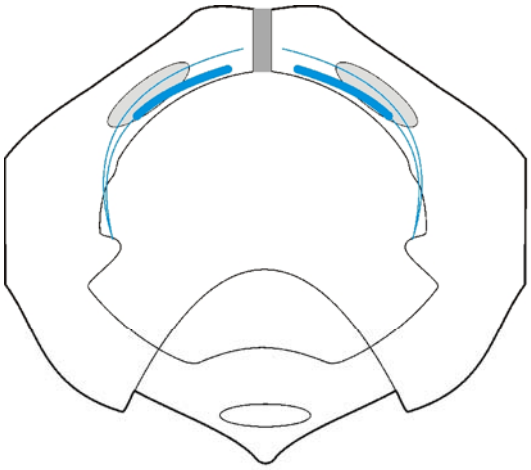
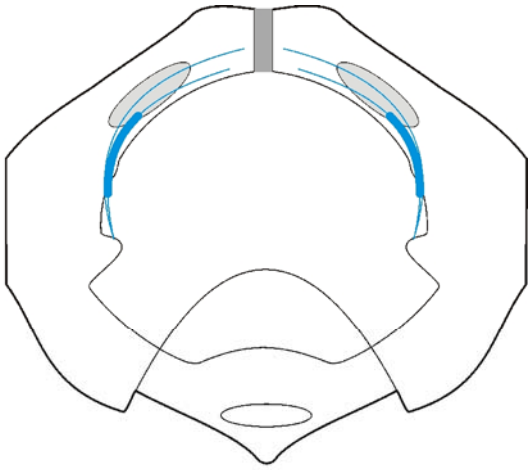


atl origin pubococcygeus muscle
as part of levator ani



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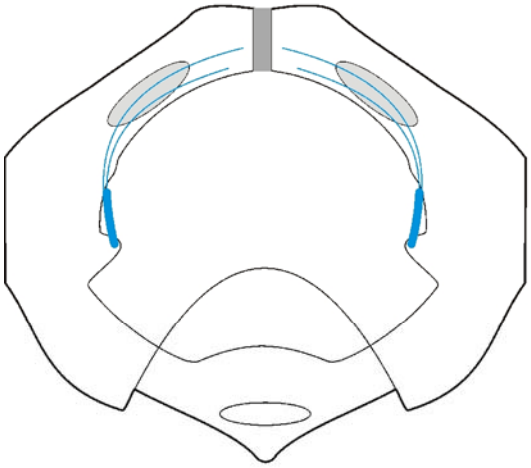
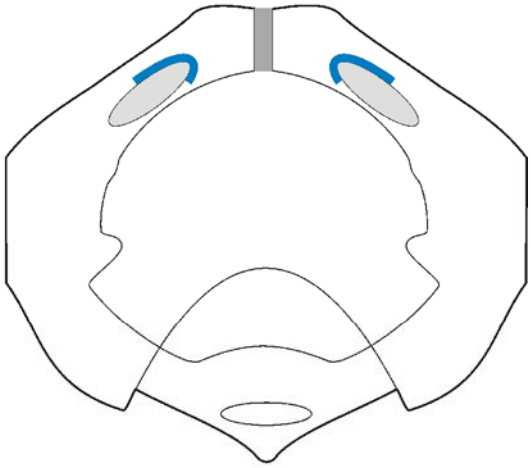
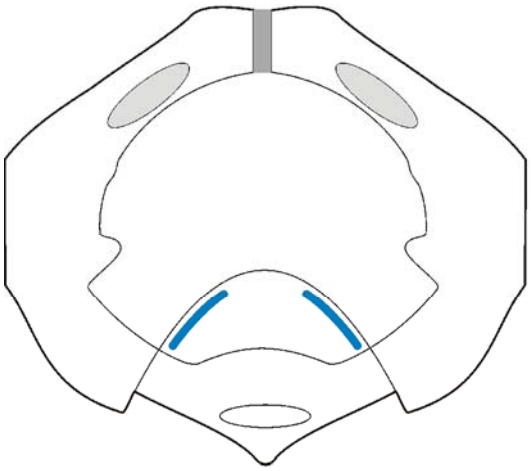
as part of levator ani



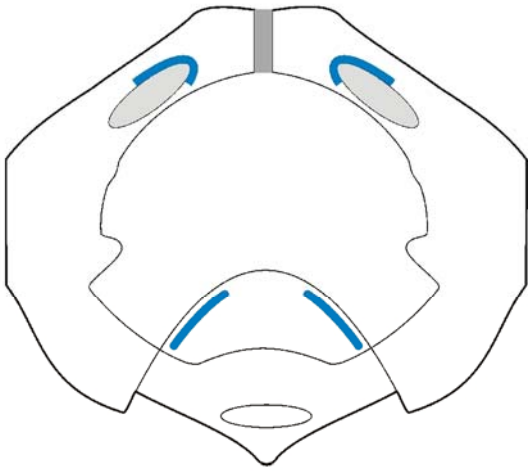
atl origin (ischio)coccygeus muscle
as part of levator ani



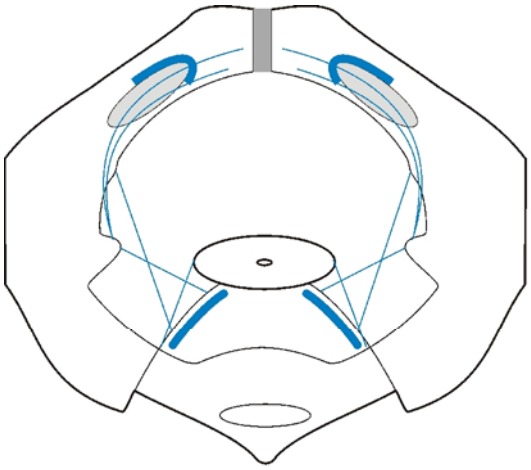
origin obturator internus muscle



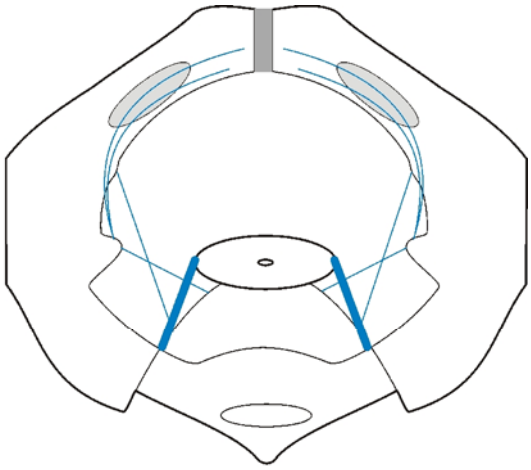
origin piriformis muscle



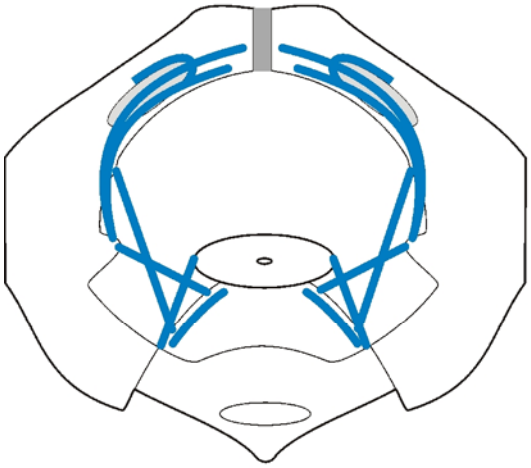
origin obturator internus + piriformis muscle



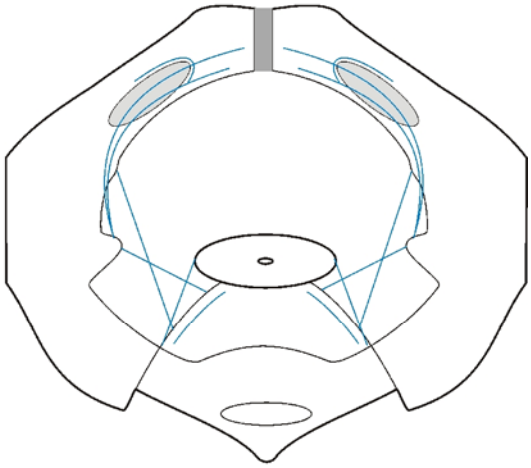
origin obturator internus + piriformis muscle



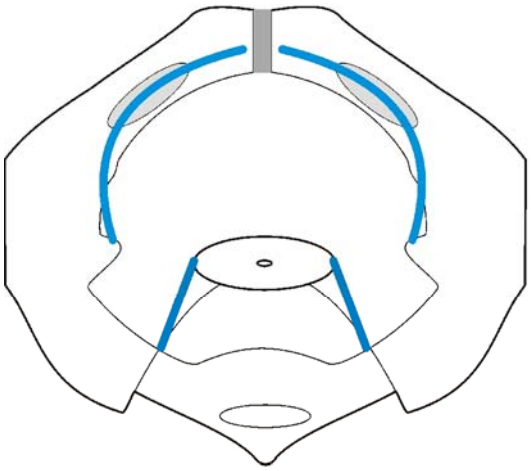
cervix with sacrouterine ligament



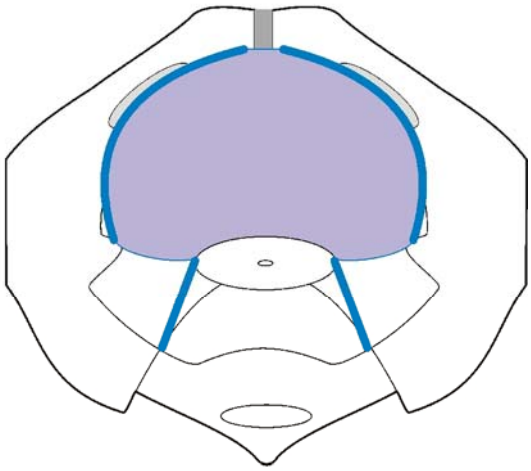
pelvis floor anatomy



pelvis floor anatomy II

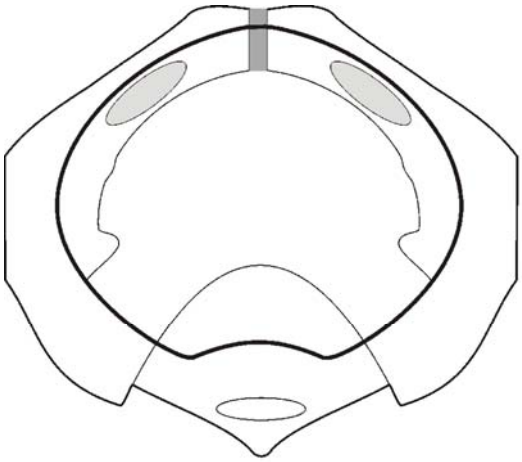


atf + cervix with sul

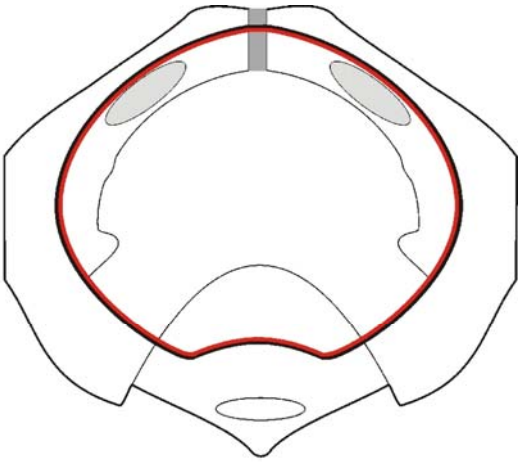


pubocervical fascia

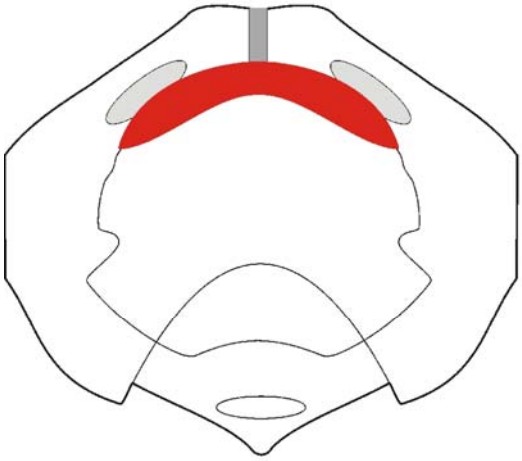
the obstetric trauma



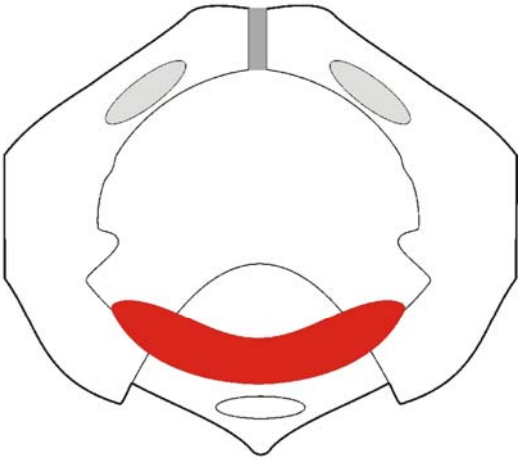
pelvis inlet ring



obstetric trauma



anterior trauma



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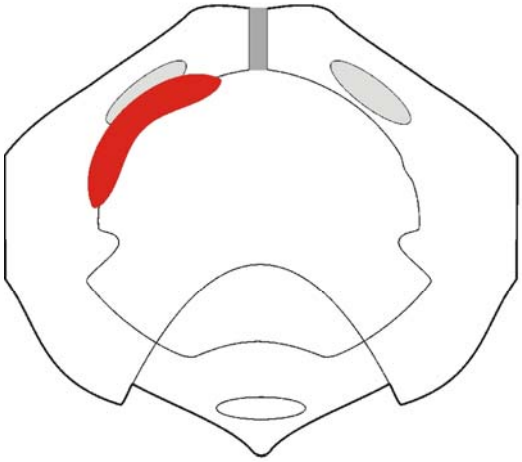
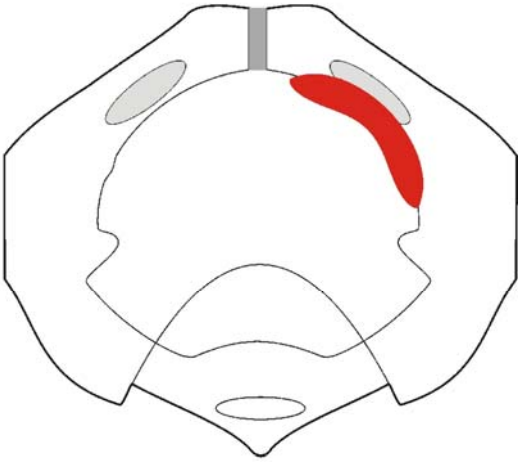
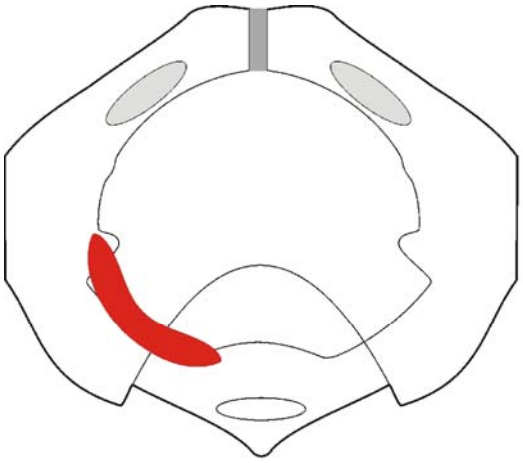


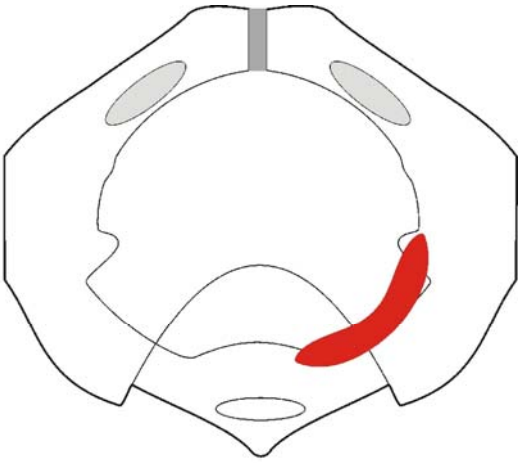
lateral trauma left



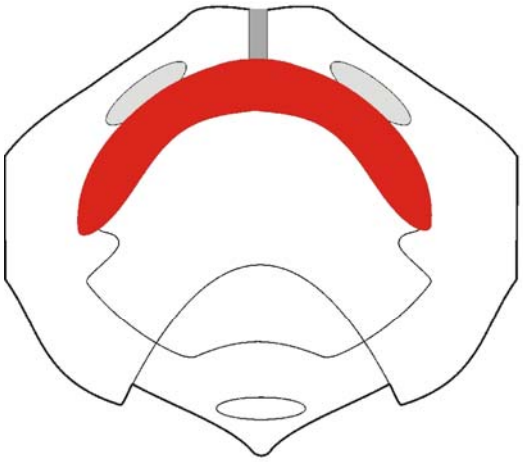
lateral trauma right



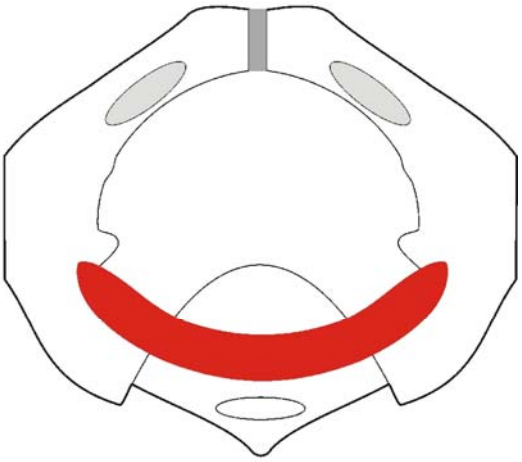
posteriolateral trauma left



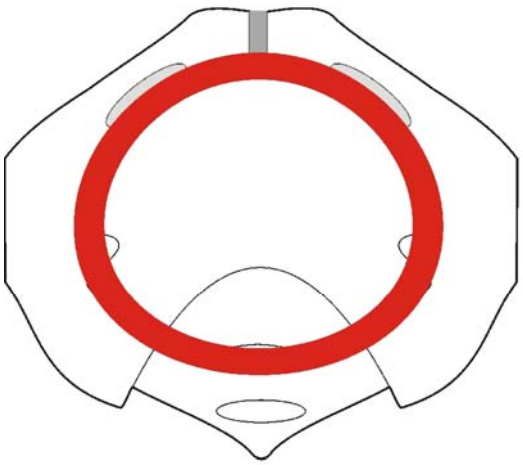
posteriolateral trauma right



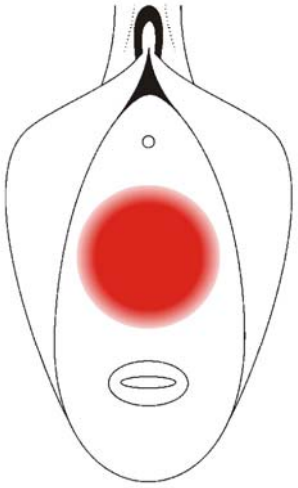
anteriolateral trauma



posteriolateral trauma



total circumferential trauma



pressure gradient

mass campaign:
immediate indwelling bladder catheterization at postpartum urine leakage

if implemented it will cure a minimum of 25,000 women a year

introduction

The occurrence of urine leakage post partum constitutes a major concern to the woman, the hospital staff and the community ((1)).

Immediate postpartum vaginal examination is troublesome, and thus most of the time not done, and almost instantaneously the diagnosis of vesicovaginal fistula (VVF) is made.

Then heavy doses of antibiotics are prescribed, and as soon as the patient has sufficiently recovered from her childbirth she is sent home and told to come back after 3 months for further evaluation.

As in many instances she cannot be managed, due to lack of facilities, lack of instruments or lack of expertise, she starts to travel from place to place until she finds somebody who is capable and willing to operate upon her.

However, not all urine leakage post partum is a VVF, and contrary to the general belief a great deal can be and should be done already immediately by very simple measures under any condition however primitive that may be and by anybody who is involved at postpartum care, be it a doctor, a nurse or a midwife. It also involves only a little amount of money.

cause of leakage

There are several conditions to be considered, viz. vesicovaginal fistula, atonic bladder with overflow, urethra stricture with overflow, and stress incontinence.

The **vesicovaginal fistula** in all its forms is the most common and varies in size from minute to very extensive. There is always the possibility of spontaneous healing, especially in the small fistulas; this process may be speeded up by an indwelling bladder catheter for total decompression.

In **atonic bladder** with overflow incontinence the detrusor muscle fibers have been overstretched to such an extent that they cannot contract any more. Decompression by an indwelling bladder catheter gives it the opportunity to recover completely.

In **strictures of the urethrovesical junction**, there is outflow obstruction with overflow incontinence. Gentle gradual dilatation of this stricture by metal sound up through size Hegar 10 and then an indwelling bladder catheter most of the time heals this.

Stress incontinence immediately after labor may be due to a subfistulous trauma to the closing/continence mechanism. It may also be an atonic bladder which is spontaneously recovering with in its healing phase stress incontinence. An indwelling catheter may contribute to complete recovery.

treatment

specific treatment of the leakage

The principle is to decompress the bladder totally for a sufficiently long time in order to give it the opportunity to heal spontaneously since the fresh wound edges are lying against each other. The earlier this is done the better the chance of spontaneous healing.

<u>a. indwelling bladder catheter</u>

A sufficiently large FOLEY catheter (preferably size Ch 18) is inserted to have free draining of urine for at least 4-6 weeks. The balloon is filled up with a maximum of 10 ml normal saline. Whenever the catheter gets blocked (only when she is not drinking enough!), it is flushed or changed for another.

b. high oral fluid intake

To prevent blocking of the catheter and to prevent ascending urinary tract infection ensure that the patient drinks at least 5-6 liters of fluids (in whatever form) in order to produce a minimum of 4,000 ml urine per 24 hr. The urine should be completely colorless and odorless like clear water.

c. no antibiotics

The routine use of antibiotics should be abolished, as the fistula is caused by necrosis and not by infection. Only when the patient develops generalized sepsis like puerperal sepsis or a specific infection like pneumonia should antibiotics be prescribed.

supportive treatment for her general conditiom

d. hematinics

If needed fersolate and folic acid are prescribed, and in severe anemia iron dextran i.m.

e. high-protein diet

As the trauma of obstructed labor is such that many patients are in a bad state of health immediately after labor, a high-protein diet is prescribed if needed.

f. Immediate mobilization

Do not let the patient lie down out of misplaced pity but encourage her to walk around with or without support of a stick in order to promote her general health and especially to prevent the development of flexion contractures of the hip, knee and ankle

management

The first few days the patient should stay in the hospital under close supervision to monitor her and to instruct her properly in catheter care and drinking. Then when her general condition is alright she can be treated on an outpatient base. She has to come once a week to report on leaking and to be instructed again to drink as much as possible. If possible a vaginal examination should be made every 1-2 weeks to determine the spontaneous healing tendency but this is not really necessary.

After removal of the catheter, the patient is instructed to continue drinking and to pass urine frequently. She has to refrain from sexual intercourse for 4-6 mth. Also she is instructed to attend antenatal care at subsequent pregnancies and to deliver in a hospital at subsequent deliveries.

The patients who still leak after 6 weeks of catheterization have to be referred to a VVF-center for further evaluation and treatment.

prognostic results

Only by these simple measures, indwelling bladder catheter for at least 4-6 weeks and high oral fluid intake, **at least 25-30%** of the patients leaking urine immediately post partum will be cured. The earlier the catheter is inserted after the leaking starts the higher the success rate.

statistics

During the 25-yr period 1984-2009 in the kano and katsina centers a total of 13,800 procedures were performed in 11,460 patients with postpartum urine leakage.

Out of these 11,460 patients **4,424 (39% of patients and 32% of procedures) were treated within 75 days postpartum either by catheter and/or early closure**,

viz 2,031 (18% of patients and 15% of procedures) by indwelling bladder catheter immediately upon arrival and 2,393 (21% of patients and 17% of procedures) by early closure; see table 1.

table 1 number of patients and procedures kano + katsina 1985 thru 2008

	no of patients	no of procedures
katsina	7,060	8,695
catheter	1,167 (16,5%)	1,167 (13.4%)
early closure	1,265 (17.9%)	1,265 (14.5%)
immediate management	2,432 (34.5%)	2,432 (28.0%)
kano	4,400	5,105
catheter	864 (19.6%)	864 (16.9%)
early closure	1,128 (25.6%)	1,128 (22.1%)
immediate management	1,992 (45.2%)	1,992 (39.0%)
grand total	11,460	13,800
catheter	2,031 (18%)	2,031 (15%)
early closure	2,393 (21%)	2,393 (17%)
immediate management	4,424 (39%)	4,424 (32%)

Out of the 2,031 catheter patients in the kano and katsina centers **1,579 (78%)** were **cured completely by catheter,** all without antibiotics, since the author started this type of management in August 1987; see table 2.

table 2 results of catheter treatment

kano	healed/continent	705 (82%)	out of 864
katsina	healed/continent	874 (75%)	out of 1,167
total	healed/continent	1,579 (78%)	out of 2,031
	1,579 (36%) out of 4,424 immediate management		

Out of the 4,424 patients who were treated within 75 days postpartum **1,579 (36%)** were **cured completely by catheter**.
Out of the total of 11,460 patients treated in kano and katsina **1,579 (14% of patients and 11.5% of procedures)** were **cured completely by catheter**

discussion
This treatment regimen is based on a personal experience in over 18,000 fistula patients, out of whom 4,424 (in kano and katsina) were treated within 75 days after labor either by catheter or by catheter followed by operation or straight away by operation.
It is the beginning of an immediate active management of any woman who starts leaking urine after childbirth. If successful, and that is in at least 25-30% of the patients, it will prevent the woman from being ostracized from her own family and community. If not successful, she has to be referred to a VVF-center for further surgical management. If upon vaginal examination the fistula is too big or the balloon is inside the fistula, the catheter should be removed, and the patient referred to a fistula surgeon.
The indwelling FOLEY catheter will decompress the bladder so that the wound edges are coming together and stay together, at least in the smaller fistulas. As such this will promote spontaneous healing of the smaller fistulas. Also it may prevent urine dermatitis to develop.

Open draining of the catheter into a pot or a plastic bowl is better than closed draining into a urine bag, when one sees how the patients handle their urine bag. Therefore the author fixes an infusion giving set to the catheter to allow the patient free mobility. There should be free drainage at all times, and the patient has to be instructed not to block the catheter or to lie upon the catheter when she sleeps. If the catheter gets blocked, it should be flushed or changed for another immediately, and the patient should be urged to drink.
The importance of a high oral fluid intake cannot be stressed enough. The consequent high urine output will prevent blockage of the catheter and will prevent any ascending urinary tract infection. Urinary tract infection will only develop with a low urine output and/or outflow obstruction. If the urine is not clear and colorless and odorless like water she is not drinking enough.
The indiscriminate use of antibiotics in necrotic lesions is against basic surgical principles. In burn wounds, thermal necrosis, where the necrotic trauma is far more extensive routine antibiotics are even considered to be malpractice. The best would be to excise the slough and as soon as the wounds are clean to perform early closure ((2)). However, this requires ample experience in VVF-surgery and is beyond the scope of this article.
If the leaking extends beyond 3 months after childbirth nothing can be expected anymore from catheterization.
In order to reduce the incidence of postpartum urine leakage, any woman with obstructed labor should have already an indwelling bladder catheter inserted as soon as obstructed labor has been diagnosed; and if it develops it should be continued as outlined above.

conclusion

Any woman who starts leaking urine post partum should have an indwelling bladder catheter for a period of at least 4-6 weeks. And then she has to take 5-6 liters of oral fluids a day to produce a minimum of 4-6 liters of urine per 24 hours.
If by **mass campaign** this regimen would be installed all over the developing world it will prevent/heal the obstetric fistula in at least 25-30% of the patients and that is more than all fistula surgeons combined are operating at the moment; for a fraction of the costs; however, the patient has to be instructed and monitored very carefully..
Though the obstetric fistula will remain a major public health problem for at least 50 years coming ((3)), immediate bladder catheterization will have a **major** impact curing a minimum of 25,000 women a year out of the annual incidence of 80.000-100,000 new patients.

references

((1)) HARRISON KA: obstetric fistula: one calamity too many. Brit J Obstet Gynecol 1983, 90: 385-386

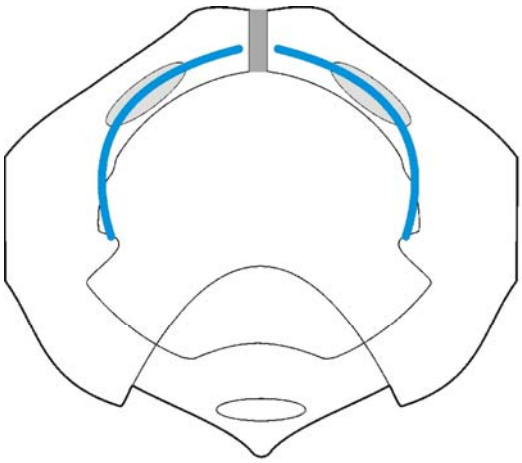
((2)) Waaldijk K: the immediate surgical management of fresh obstetric fistulas with catheter and/or early closure. Int J Gynecol Obstet 1994, 45: 11-16

((3)) Waaldijk K: the obstetric fistula: a major public health problem still unsolved. Int Urogynecol J 1993, 4: 126-128

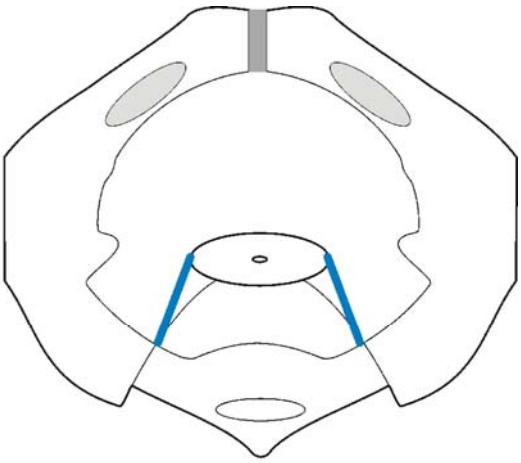
((4)) Waaldijk K: immediate indwelling bladder catheterization at postpartum urine leakage. Trop Doct 1997; 27: 227-8

first edition: March 1996 last edition December 2008

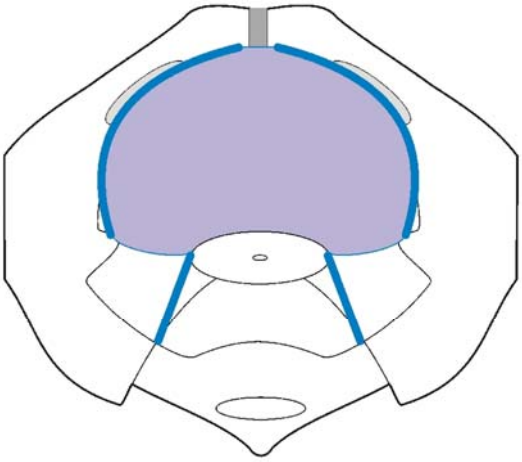
pubocervical fascia defects



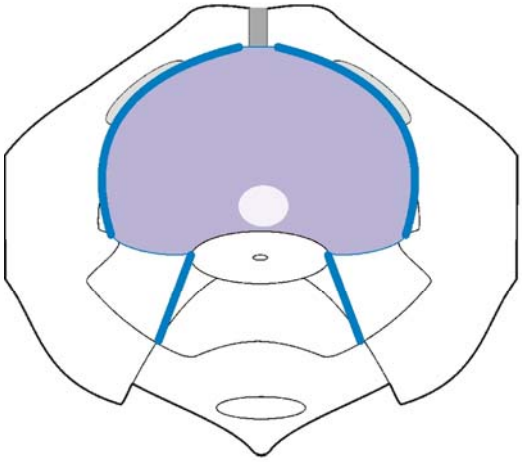
arcus tendineus fasciae = atf



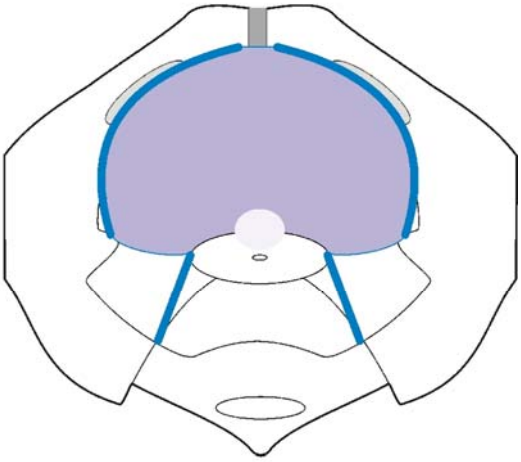
cervix with sacrouterine ligament = sul



pubocervical fascia



defect pubocervical fascia
type I fistula



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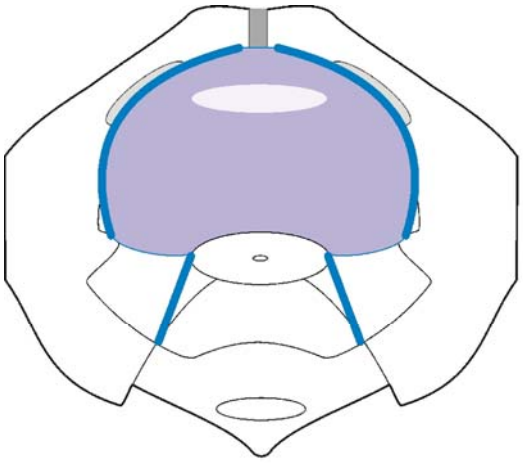
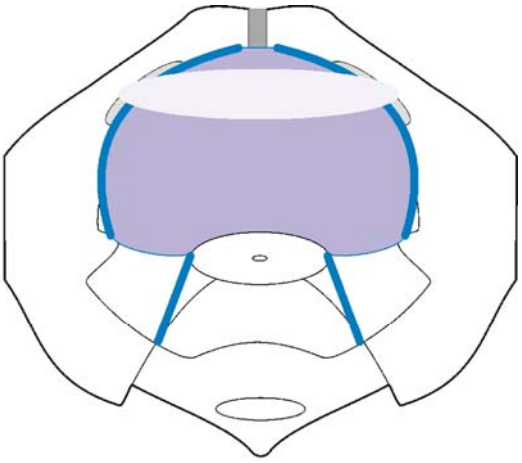
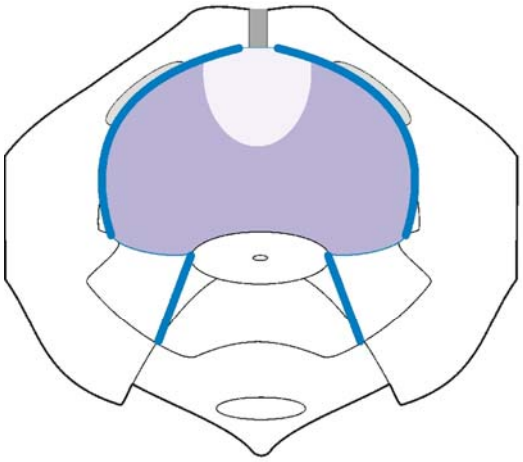
type I fistula



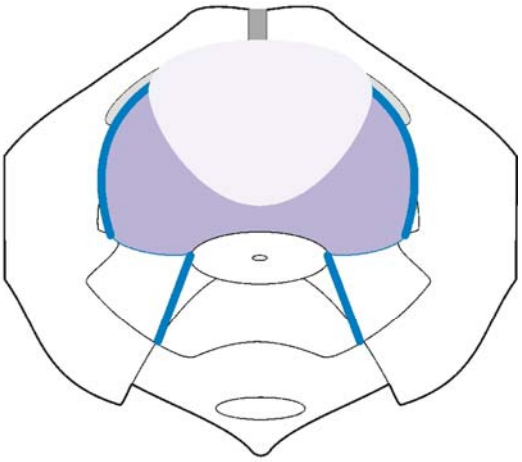
transverse defect pubocervical fascia
type IIAa fistula



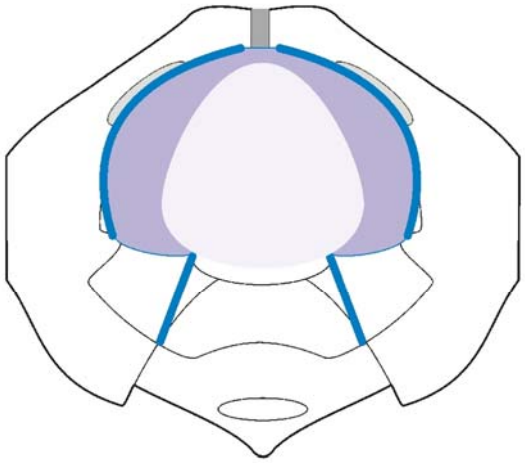
transverse defect pubocervical fascia
type IIAb fistula



defect pubocervical fascia
type IIBa fistula



defect pubocervical fascia
type IIBb fistula



median defect pubocervical fascia
intrinsic stress incontinence/cystocele

importance of pubocervical fascia in urine (in)continence

introduction
this is based upon the systematic examination/assessment/documentation/analysis of tissue loss of the continence mechanism from one cell to total loss as a **"natural experiment"** within the complex trauma of the obstetric fistula; what a privilege

main continence factors
intact bladder neck/urethrovesical (uv-) junction/trigonal ring
intact urethra anatomy with normal length of 3-4.5 cm and normal diameter
static suspension by pubourethral ligaments and adhesions between anterior urethra/anterior uv-junction/anterior bladder neck and posterior symphysis
dynamic support by pubocervical fascia securing and stabilizing the urethra in its anatomic position with also hinge effect compressing urethra against symphysis
intact innervation

continence potential
can shift over whole urethra length from uv-junction to the external urethra opening depending upon physiologic stress; the mobile posterior urethra wall coapts against the fixed anterior urethra wall closing the urethra

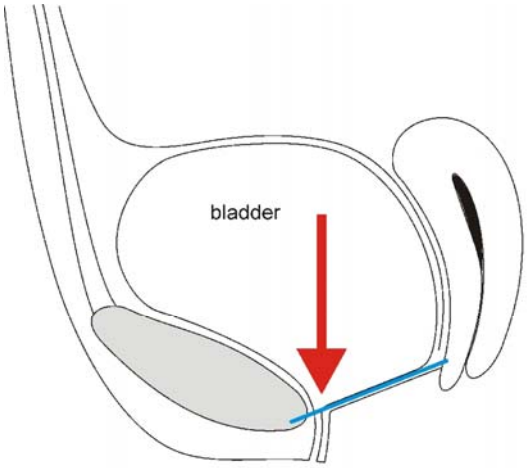
pubocervical fascia
like skin of drum anteriorly from bilateral paraurethral pubic bones, (anterio)bilaterally from bilateral arcus tendineus fasciae from paraurethrally to ischiac spine and posteriorly from cervix and indirectly via the sacrouterine ligaments from the sacrum
the posterior bladder, posterior bladder neck/uv-junction and posterior urethra wall rest upon and are adherent onto the pubocervical fascia
the anterior part of the pubocervical fascia in combination with its bilateral fixation to the symphysis and arcus tendineus fasciae secures and stabilizes the urethra in its anatomic position so that the urethra can exerts its physiologic closing/continence function; if this becomes defective, problems with continence may develop

mechanism of urine incontinence
the anterior external opening, anterior urethra, anterior uv-junction and anterior bladder neck are fixed/adherent to the posterior symphysis and the anterior bladder is adherent to the posterior symphysis and anterior abdominal wall; in the upright position the anterior bladder neck, anterior uv-junction and anterior urethra wall are pressed against the posterior symphysis and more or less immobile
there are two forces at work which exert traction upon the mobile posterior uv-junction and posterior urethra wall whereby
first the uv-junction and proximal urethra are pulled and pushed open and the urethra becomes functionally part of the bladder (vesicalization); as long as the remaining intrinsic continence mechanism is strong enough the woman is still continent but once the intrinsic continence mechanism cannot cope any more with increased intravesical pressure there is urine loss; though this is called genuine stress incontinence actually it is intrinsic incontinence

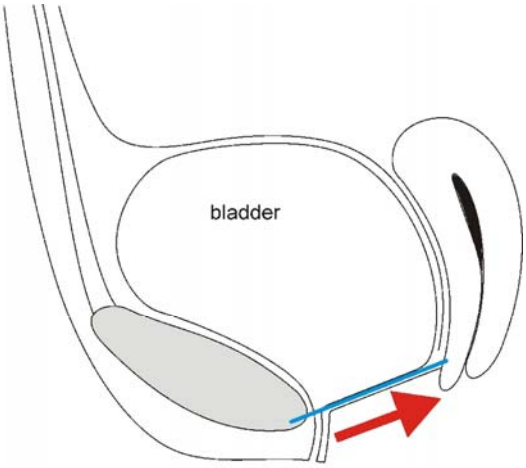
later there will be opening up of the whole urethra (total vesicalization); the posterior urethra wall is pulled away from the anterior urethra wall opposite to the direction of coaptation; besides this the posterior urethra wall is pulled towards the cervix as well with posterior deformation of the external urethra opening so that the smooth muscle fibers become more oblique and continent closure is no longer possible and the woman looses urine more or less continuously whilst lying/sitting/standing/walking, with or without spontaneous miction
the first force is downward due to herniation of the posterior bladder/posterior bladder neck/posterior uv-junction/posterior proximal urethra thru the median defect in the pubocervical fascia as seen in cystocele or as due to a loose pubocervical fascia since its connection to the arcus tendineus fasciae has been lost either directly as in circumferential fistulas or indirectly by a transverse defect in the pubocervical fascia: the second force is posterior into the direction of the cervix due to pull by the herniated and/or sagging down posterior bladder wall
this second force can be the main mechanism of incontinence as seen when a longitudinal median scar from the external urethra opening to cervix (see mutilating incision) keeps on contracting throughout life since it is perpendicular to the ruga folds; it can also been seen after a caesarean section whereby the cervix is fixed intra-abdominally and moves upward on cough with posterior traction onto the pubocervical fascia/anterior vagina wall; it is seen frequently in ureter fistulas type III due to its posterior traction effect upon the pubocervical fascia/anterior vagina wall; once there is vesicalization a downward force will come in as well

discussion and practical consequences
the obstetric fistula surgeon is in a unique position to study the urine continence mechanism in the female by direct observation of an endless variety of the natural experiment of complex obstetric trauma in all its forms
the term intrinsic stress incontinence is preferred above stress incontinence since it is the intrinsic continence mechanism which is defective and has to be corrected
the art of reconstructive surgery is to first assess the trauma and then to reconstruct only the functional anatomy so that physiology will be restored by physiologic stress
since any patient with urine incontinence is unique, once the general principles have been outlined the operation technique has to be customized to correct the specific individual lesions; a standard trick may work but it is insight that counts
for intrinsic-stress incontinence a physiologic reconstructive operation technique has been developed which only corrects the defects in the pubocervical fascia with tightening if necessary; these principles may be of value to the industrialized world as well since most operation techniques are tricks and nonphysiologic
for all the fistula types, type I; type IIAa, type IIAb, type IIBa and type IIBb operation principles have been developed to correct the respective defects in the pubocervical fascia and its fixation already during the repair to prevent postrepair incontinence

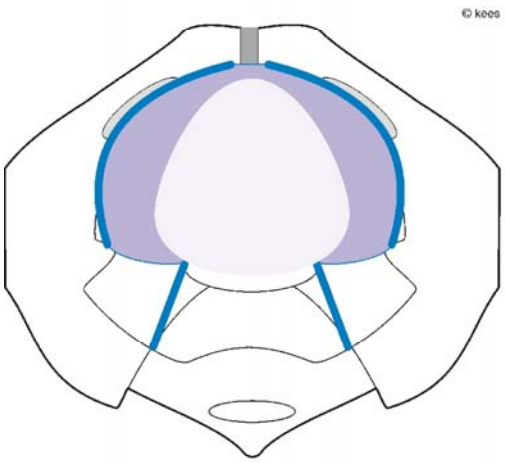
mechanism of incontinence



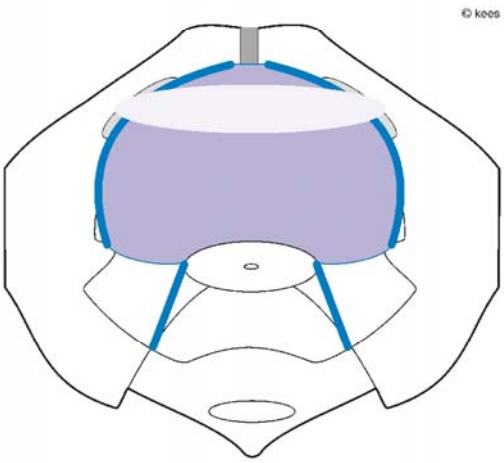
downward force



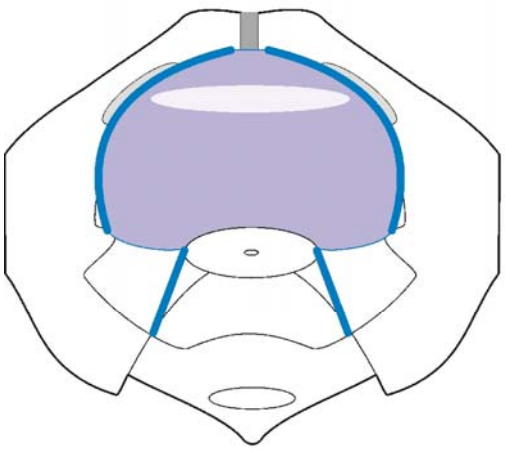
force towards cervix



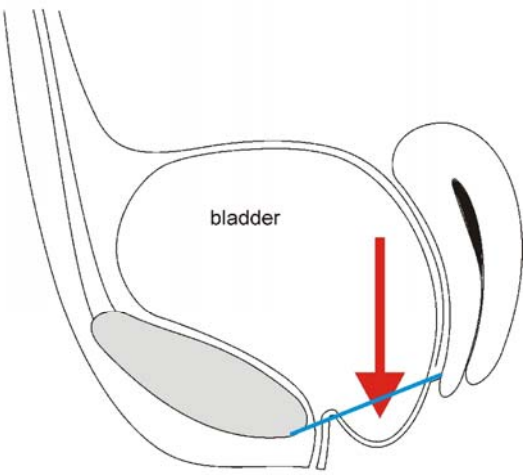
median defect pubocervical fascia
intrinsic stress incontinence/cystocele



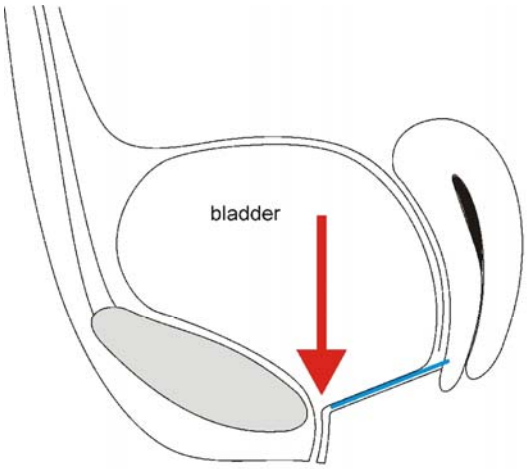
transverse defect pubocervical fascia
type IIAb fistula



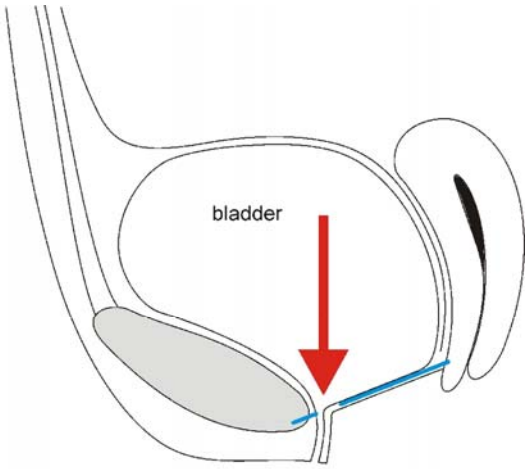
transverse defect pubocervical fascia
type IIAa fistula



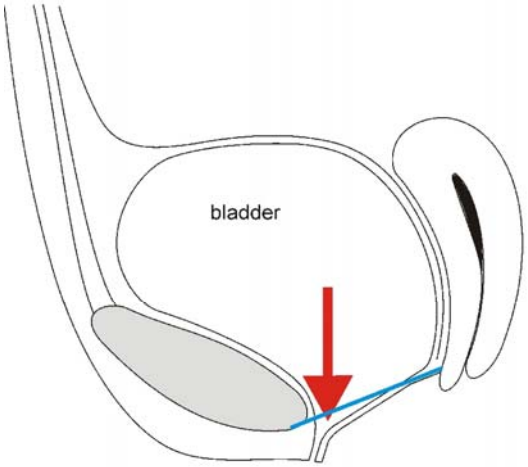
downward force
cystocele due to median defect pc fascia



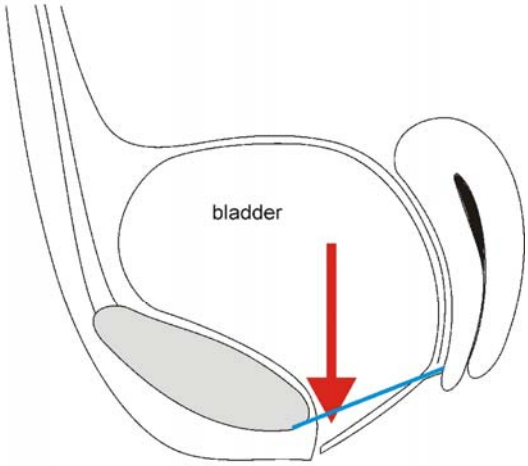
downward force
no connection pc fascia to atf



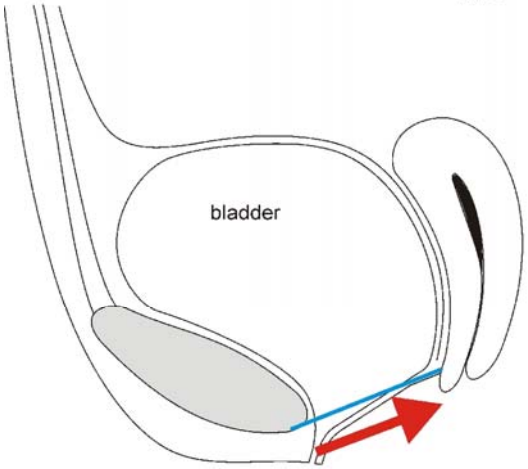
downward force
indirectly no connection pc fascia to atf



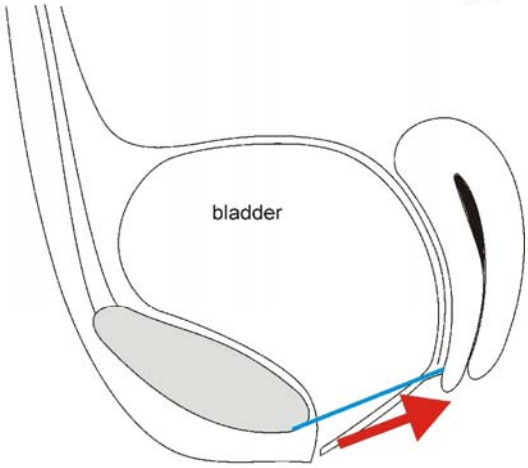
vesicalization of proximal urethra



total vesicalization



vesicalization of proximal urethra



total vesicalization

prevention of post IIAa repair incontinence prospective study in 845 consecutive patients

kees waaldijk MD PhD

abstract

objective

To study fully prospectively and evidence based if the meticulous repair of any defect in the pubocervical fascia as essential part of the operation technique in type IIAa fistulas would prevent postrepair (total) urine incontinence grade III.

study design

During a 4 year period 845 consecutive patients with a type IIAa fistula were treated following these principles; irrespective of fistula extent, previous repairs, scarring, vagina stricture etc.

results

Out of these patients the fistula was healed in 840 (99.4%) with full continence in 828 (97.4%) and total postrepair incontinence in 7 (0.8%)

conclusion

This approach proved highly effective

keywords

obstetric fistula type IIAa
pubocervical fascia
prevention of postrepair incontinence

introduction

One of the major problems in obstetric fistula surgery is the occurrence of total postrepair urine incontinence. Though the fistula has healed the patient continues to leak urine more or less continuously whilst lying, sitting, standing and walking as if there still were a fistula: For the patient it is terrible since she and her community do not consider her as healed and she remains an outcast. For the surgeon it is frustrating since (s)he did a good job, however not good enough: repair successful but patient leaking.

As a full-time fistula surgeon of almost 20,000 personal fistula repairs and related operations during more than 25 years the author had and still has the privilege to study the urine continence/closing mechanism in the female in a unique way since nature presented him with all the lesions due to obstructed labor in a “natural experiment”: anatomic tissue loss of the continence mechanism in all its stages from one cell to total loss and development over time from a duration of 1 day up through more than 50 years.

By continuous monitoring and analysis of the necrotic tissue losses as documented by computerized relevant individual data and operation reports, a complete database, analogous and digital photographs, evidence-base results and long-term follow-up from the very first to the last patient, it became clear that the pubocervical fascia plays a major role in maintaining continence by stabilizing and securing the urethra in its anatomic position (Ref 1).

Therefore it is of utmost importance to look systematically for defects in the pubocervical fascia and its origin the arcus tendineus fasciae and then to meticulously repair any defect found for an optimal function; and to systematically document these findings and what has been done as well.

Fistulas involving the continence/closing mechanism (II), without (sub)total urethra involvement (A) and without circumferential defect (a) are classified as type IIAa fistulas (Ref 1-3). In type IIAa there is always a transverse defect in the pubocervical fascia which may result in insufficient support of the bladder neck/proximal urethra and/or an indirect loose connection to the bilateral intact arcus tendineus fasciae; this means the function of the pubocervical fascia may not be optimal.
In 2005 a fully prospective study was started to find out evidence based if meticulous repair of the pubocervical fascia as essential part of the operation technique would prevent postrepair (total) urine incontinence whereby at operation end the chances of healing and of continence were indicated separately in percentage ranging from 5 to 95% also in a prospective way. However, since the physiologic healing and regenerative power of nature can not be overestimated enough, catheter treatment as immediate management in fresh fistulas was included as well.
In a 4-year period 2005-09 a total of 845 consecutive patients with type IIAa were treated according to these principles in the 3 centers in Katsina, Kano and Zaria in Northern Nigeria where the evidence-based follow-up is reliable.

methodology
During the 4-year period of study 845 patients presented themselves with a type IIAa fistula and were all included irrespective of extent of fistula, previous operations, scar tissue, coexistent rectovaginal fistula or anything else; for characteristics see table 1.

Table 1 characteristics in 845 patients with type IIAa fistula

fistula size		
small	$\underline{\geq}$ 2 cm	400
medium	2-3 cm	271
large	4-5 cm	109
extensive	$\underline{\geq}$ 6 cm	65
operated before (1-6 times)		138
mutilated		78
“inoperable”		4
combined with rvf or stool incontinence (healed or not)		208
2nd obstetric fistula		59
3rd obstetric fistula		4
immediate management		578
- within 75 days post partum		

Since the (surgical) management has to start the moment the leaking of urine becomes manifest the management included 578 patients within 75 days post partum and was as following. Upon arrival the patients were urged to follow a high oral fluid intake and personal hygiene. If there was slough a debridement was performed and the patient urged to cleanse herself by sitzbaths until the fistula was clean, and then a repair was performed.
If we had the feeling the fistula would heal by catheter a FOLEY Ch 18 catheter was inserted for 4 weeks and these patients were examined once a week for healing.

If the catheter management failed and in all the others an operation was performed according to the following principles.
Under spinal anesthesia and in the exaggerated lithotomy position an episiotomy was performed if necessary and a meticulous examination was made of all the necrotic and other lesions including the characteristics of that specific fistula and trauma to the pubocervical fascia. The ureters were catheterized if found, a transverse incision was made thru the fistula and a minimal dissection of the anterior vagina performed. A meticulous transverse repair of the fascia with closure of adherent bladder/urethra was performed by a single layer of inverting polyglycolic acid starting bilaterally and then working towards the midline; using a minimum number of sutures for a tension-free adaptation of the fascia with adherent bladder/urethra. If necessary, at the start of repair the proximal fascia was sutured (bi)laterally onto the paraurethral arcus tendineus to restore/reinforce its connection onto its origin. The longitudinal bladder diameter was measured in cm and the urethra length in mm for scientific purposes. The width of the urethra and external urethra opening was classified as normal or open, the tissue quality of the urethra as good, medium or poor, and the position of urethra and external urethra opening as anatomic or posteriorly drawn inside as an indicator of fascia function. Then a FOLEY Ch 18 catheter was inserted into the bladder and fixed. A dye test was not performed but it was systematically checked if there was a piece of bladder mucosa sticking out, and if so then reduced, since that would interfere with and prevent healing. The anterior vagina wall was only adapted by 2 everting nonabsorbable nylon sutures according to the principles of septic surgery, and the episiotomy closed. A systematic carefull check on hemostasis was performed whilst a vagina pack was only inserted upon indication.
The different types of (surgical) management, only catheter, catheter followed by surgery or only surgery are illustrated in table 2.

Table 2 (surgical) management

catheter upon arrival	242
- immediate management	
- 31 not healed by catheter	
repair as first attempt	603
- immediate or later management	
repair upon catheter failure	31
- immediate management	

The postoperative care consisted of up to 24 hours in an “intensive” care unit, full mobilization the following day and transfer to a normal postoperative unit and then after some days to a low-care unit or hostel. No routine pre-, intra- or postoperative antibiotics were given but high oral fluid intake urged; they were instructed to report immediately if the catheter should get blocked. Episiotomy sutures were removed 7 days after operation. The FOLEY catheter was removed at 2-4 weeks postoperatively, and patients urged to continue high oral fluid intake with regular micturition. One week after catheter removal the nonabsorbable intravaginal sutures were removed and a vaginal examination performed as to healing and incontinence by highly experienced theatre staff. Then the patients were discharged and instructed to refrain from sex up to 6 months after operation, to return for follow-up at 2, 4 and 6 mth when they were asked about leaking, incontinence and spontaneous micturition, and a vaginal examination performed as to healing and continence by highly experienced theatre staff.

If they were incontinent they had to follow our bladder drill for 2-4 wk where under supervision they had to drink plenty and to urinate every 15-30 minutes. In case of failure or persistent incontinence the surgeon together with his experienced staff examined the patient and made a decision how to proceed further. If there was a residual fistula they were operated again following the same principles: if they remained incontinent, at 4-6 months postoperatively an incontinence operation was performed using the same principles: urethralization by rhaphy and fixation of the pubocervical fascia.
Anything done pre-, intra- and postoperatively was documented in individual computerized pre-, intra- and postoperative findings and reports including each and every follow-up.
Right from the moment they arrived at the hospital continuous health education was given about personal hygiene, high oral fluid intake, postoperative follow-up, to return when pregnant for 3 months and to deliver in a hospital at subsequent deliveries. We made sure they understood the instructions by asking them to repeat what they had been told.
Some 90% of the patients returned for regular follow-up to 5-6 months or even longer and were examined for healing and continence; on an average base they came for follow-up including vaginal examination 4-6 times. Some 10% of the patients defaulted somewhere between 5 weeks and 4 months but then they had been examined already for healing/continence at least 1-2 times and the evidence-based results documented.

results
The findings at the last check-up were taken as basis for this study: The fistula was considered as healed if there was no longer any sign of fistula and as not healed if there was still a residual fistula. Then the healed fistulas were further classified as those with full continence and those with incontinence; the (in)continence rate being part of the healed fistulas. The postrepair incontinence was graded as following: grade I when the patient was leaking some urine on cough/standing up, grade II when the patient was also leaking urine whilst standing/walking and grade III when the patient was leaking urine more or less continuously whilst lying/sitting/standing/ walking with or without spontaneous micturition.
The evidence-based results after first attempt are demonstrated in table 3.

Table 3 results at first attempt (by the author)

fistula healed		835 (98.8%)
with full continence	808	
with incontinence I-II	15	
with total incontinence III	12	
5 incontinence operation and dry		
fistula not healed		10 (1.2%)
6 operated, healed and dry		

The 31 patients who did not heal by catheter were healed and dry after subsequent operation being part of immediate management. The only patient who developed total urine postrepair incontinence grade III after successful closure by catheter treatment became totally dry following an incontinence operation.
Out of the 4 patients with “inoperable” fistula and who had a last-resort final approach, 2 were healed and dry, 1 was healed with postrepair incontinence grade III and 1 still had a really inoperable fistula.
The final evidence-based results are given in table 4.

Table 4 final evidence-based results

fistula healed		840 (99.4%)
with full continence	818 (97.4%)	
with incontinence I-II	15 (1.8%)	
defaulted at 1-8 mth		
with incontinence III	7 (0.8%)	
defaulted at 2-5 mth		
however 6 still living with husband		
not healed		5 (0.6%)
1 inoperable and 4 defaulted		
however, 4 still living with husband		

Out of the 5 patients in whom the fistula had not healed, 1 had an inoperable fistula operated before elsewhere and 4 had an extensive fistula never operated before, were still living with their husband on the same compound and did not return for further treatment.
All the 818 patients dry and continent were socially (re)integrated especially since most of them had been cured before they could become outcasts.
The 15 patients with postrepair incontinence I-II were probably socially continent or became continent since they did not return for further treatment.
Out of the 7 patients with postrepair urine incontinence grade III and did not return for further treatment, 6 were still living with their husband on the same compound.
That leaves us with only 2 patients with questionable socialization; these are the patients to concentrate upon in terms of vocational rehabilitation.
There were 2 patients healed and dry at 2 month postoperatively who returned at 3 months with a recurrent fistula induced by early sex and they were healed and dry after another operation using the same principles.
So far 122 patients returned whilst pregnant 3-4 months and they were instructed to attend antenatal care and to deliver in a hospital taking with them their fistula particulars and telling the doctor they had an obstetric fistula before. However, 6 returned with a new obstetric fistula and were healed and dry following another repair.
The long-term evidence-based follow-up is demonstrated in table 5.

table 5 long-term evidence-based follow-up

fistula healed		840
with full continence	818 (97.4%)	
total postrepair incontinence	7 (0.8%)	
recurrent fistula induced by early sex		2
all healed and dry by another repair		
full social rehabilitation		828
probable rehabilitation		15
questionable rehabilitation		2
reporting when pregnant 3-4 mth		122
new obstetric fistula		6
all healed and dry after another repair		

discussion

There is a trend to report only about first-time operations for reasons which elude the author (Ref 4-5). This is a report about a large number of 845 consecutive patients with a type IIAa fistula who presented within a 4-year period and who were all operated by the author personally, not a single one left out for whatever reason, irrespective of previous operations, size of fistula, scarring, parity, coexisting rectovaginal fistula or anything else. There is also a trend to report about the results of the first attempt but it is the final result that counts irrespective of the number of operations.

Though it may be that most projects do not have reliable patient data, operation reports and evidence-based follow-up, this project can boast of accurate patient/ fistula data, reliable evidence-based results and long-term follow-up over years in combination with relevant in-depth complete documentation with a database of some 3 million entries which is hard to find in the world; not a single patient is missing from the personal obstetric fistula management of the author since his first repair in December 1983.

Though in a way the same was done already over years without understanding what exactly was being done, at a certain point by continuous systematic analyzing the whole complex trauma of the obstetric fistula the value and function of the pubo-cervical fascia became clear in stabilizing and securing the urethra in its anatomic position. From that moment onwards once the science was completely understood the art came in by first identifying the defect(s) and then repairing these defect(s) customized to that specific fistula as a unique entity; by accurate reconstruction of the functional anatomy the physiologic function of the continence mechanism will be restored as well (over time) by physiologic stress.

This is one of the few really prospective studies not only to find out if the theory was right but also where even the results as to healing and as to continence were separately predicted individually in five-percentage range from 5% thru 95% at operation end as based upon all the operation findings such as tissue loss, mobility, tissue quality, width/length/position(quality of urethra, bladder capacity etc.; this was documented as well for better interpretation and analysis of the individual results.

The combination of science and art proved right in type IIAa fistulas since the fistula had healed in 840 patients (99.4%) with full continence in 828 (97.4%) and total postrepair incontinence grade III in only 6 (0.8%).

Besides this the following general conclusions about obstetric fistula surgery can also be drawn from this study. Previous repairs, scar tissue, vagina strictures etc all do not influence the outcome of surgery, only the surgical principles and surgical technique with the surgeon being the most important.

total (post-repair) urine intrinsic/stress incontinence

urethralization by repair and/or (re)fixation of pubocervical fascia

introduction

One of the major problems in obstetric fistula surgery is the occurrence of total postrepair urine intrinsic/stress incontinence. Though the fistula has been closed the patient continues to leak urine whilst lying, sitting, standing and walking as if there still were a fistula since the intrinsic continence mechanism and the stress continence mechanism are not functioning. For the patient it is terrible since she and her community do not consider her as healed and she remains an outcast. For the surgeon it is frustrating since (s)he did a good job, however not good enough: repair successful but patient leaking.

The treatment of postrepair incontinence is even more complicated than that of genuine incontinence, since there is anatomic tissue loss of the intrinsic and stress continence mechanism. This tissue loss may involve the bladder neck, urethra, pubocervical fascia, pubourethral ligaments, trigonal ring, detrusor loops, pubococcygeus muscles, iliococcygeus muscles, ischiococcygeus muscles, arcus tendineus fasciae, the arcus tendineus of the levator ani muscles, and even the internal obturator muscles and the broad, cardinal and sacrouterine ligaments; it may be partial or total and can occur in complete combination. Added to the original trauma of pressure necrosis is the surgical trauma of the repair(s). Especially when what is left of the urethra is too short, i.e. $\leq$ 1.5 cm, it is difficult to provide a solution; and this short urethra is often wide open as well.

There are a complex of many factors (see: **urine continence mechanism in the female**) which determine if a woman is continent or not. However, there are only four factors which can be approached surgically at the moment: **a)** length of urethra, **b)** diameter of urethra, **c)** support of urethra and **d)** position of urethra in relation to the posterior pubic symphysis.

This operation technique aims to correct these four factors at the same time and in a physiologic way

mechanism of incontinence

Normally the anterior urethra is secured by the anterior pubourethral ligaments whilst the posterior urethra is secured by the intact pubocervical fascia. When the pubocervical fascia becomes deficient the posterior urethra wall is pulled inside whilst the urethra is anteriorly still secured resulting in distortion of the urethra muscular arrangement, the urethra opens up with opening of the trigonal ring whereby the proximal urethra becomes part of the bladder vesicalization of the proximal urethra and then the urethra looses its physiologic continence/closing action.

operation technique

Under spinal anesthesia and in the exaggerated lithotomy position a FOLEY Ch 18 catheter is inserted, the bladder drained and the urethra length measured in cm by taking the distance from the external urethra opening to the balloon.

A transverse curved incision is made in the ruga folds with the tip at 1.5-2 cm from the external urethra opening, and the anterior vagina wall dissected from the underlying pubocervical fascia. A plication (rhaphy) of the urethra and pubocervical fascia is performed at 0-4 cm from the external urethra opening by interrupted polyglycolic acid sutures. The rhaphy is technically performed by multiple small superficial bites to avoid the ureters and the underlying urethra/detrusor muscle.

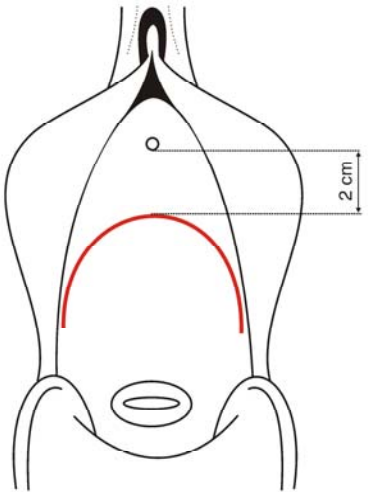
If necessary the external urethra opening can be plicated by 1 polyglycolic acid suture as well. Then the pubocervical facia is (re)fixed onto the paraurethra arcus tendineus fasciae and onto the paraurethra periurethral fascia by 2x polyglycolic acid sutures (with tightening of the fascia) in order to stabilize and secure the urethra in its anatomic position. The result should be a proximal functional lengthening of the urethra by urethralization of the bladder neck, a narrow or normal-width urethra, a good fascia “plate” and a urethra secured and stabilized in its anatomic position. The bladder is filled by 150 ml of normal saline, the FOLEY catheter removed and the functional urethra length measured. Then it is checked if urine comes out of the external urethra opening at rest (instrinsic continence mechanism) and at cough with suprapubic pressure (stress continence mechanism). The FOLEY catheter is reinserted and fixed without ballooning.
The principles of the operation technique are demonstrated in Figures **I-VIII**.

postoperative care and check-ups
The FOLEY catheter is left in situ for 2 wk and the patient instructed to drink to get an oral fluid intake of 6-8 liters per day in order to produce at least 4,000-6,000 ml urine per 24 hr to keep the catheter open and to prevent ascending urinary tract infection. Antibiotics are not indicated unless the patient should develop a specific infection such as pneumonia. The patient is fully mobilized the day after operation.
Once the catheter is removed the patient is instructed to continue drinking and to pass urine every 10-15 min under supervision for 7 days.
At discharge from the hospital the patient is instructed to continue drinking and passing urine regularly, to refrain from sexual intercourse for 4-6 mth, to come regularly for check-ups and to come for removal of the nylon sutures after 6 mth at which time a final examination is made. She is also instructed to come at 3-mth amenorrhea and to go to the hospital as soon as labor pains start.

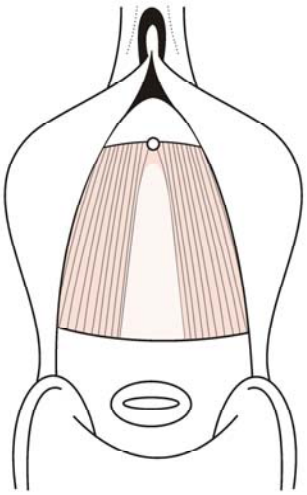
results
In Northern Nigeria out of some 450 patients operated so far, 85% were totally dry, in 10% there was sometimes slight urine leakage whilst standing and walking which did not bother them seriously, and 5% were still leaking continuously whilst lying, sitting, standing and walking.

discussion
Urethralization by rhaphy and/or (re)fixation of the pubocervical fascia has become the standard technique in Northern Nigeria for total urine instrinsic/stress incontinence. At the beginning of the operation a meticulous evaluation has to be executed of what exactly is the problem: a loose defective fascia, no connection of the fascia onto the paraurethra arcus tendienus fasciae or both. According to the findings the whole technique or part of the technique has to be performed, It has highly promising theoretical and practical potentials. Even as a last resort it can be applied and if this fails then urinary diversion should be contemplated.

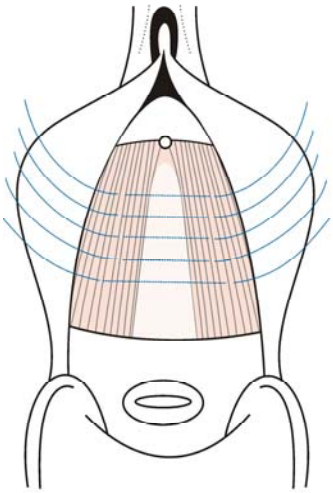
operation technique
genuine intrinsic/stress incontinence



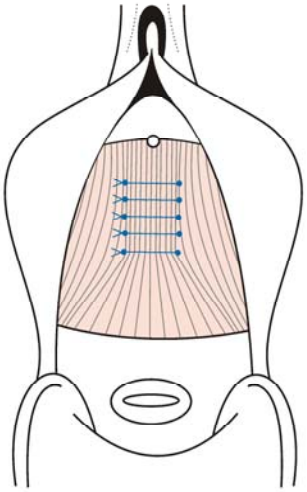
physiologic incision
anterior vagina wall



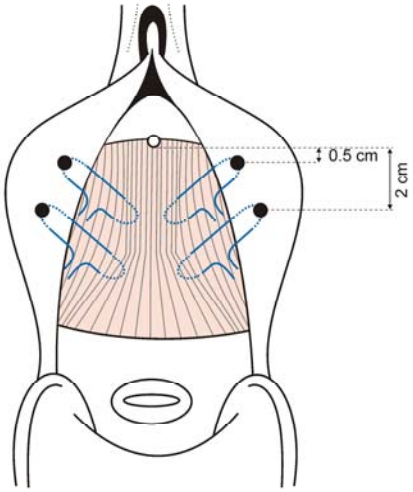
anterior vagina wall dissected
median defect pubocervical fascia



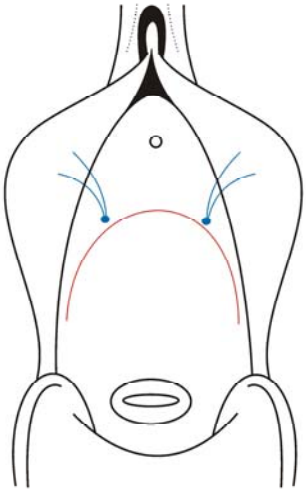
repair/rhaphy pubocervical fascia



repair/rhaphy pubocervical fascia

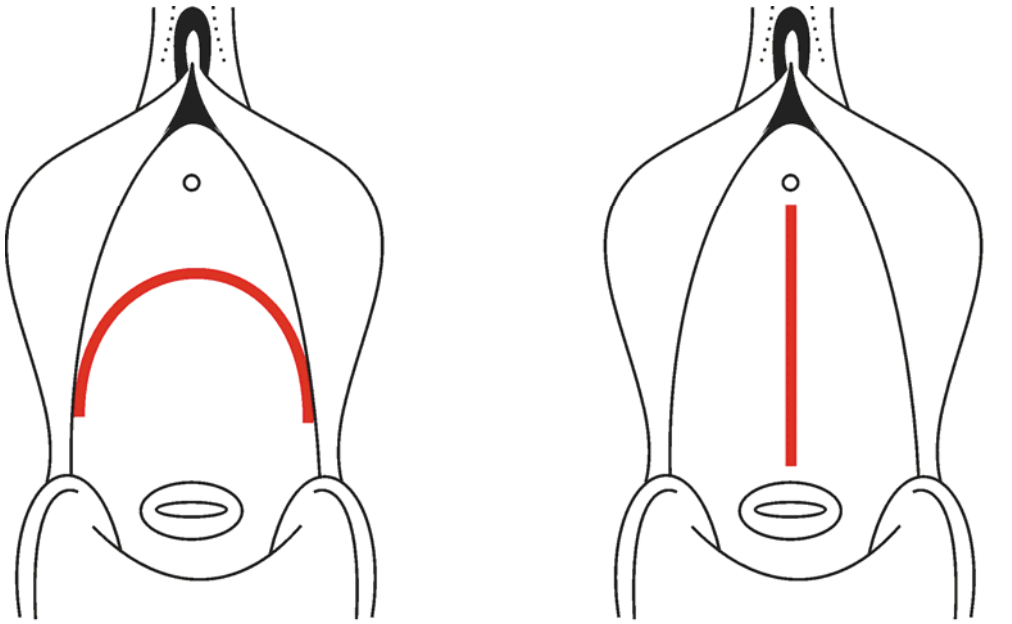


fixation sutures
at 0.5-1 and 2-2.5 cm



fixation sutures tied
anterior vagina wall adapted

note
the **most mutilating incision in surgery** is the median longitudinal incision thru the anterior vagina wall perpendicular to the ruga folds (against any plastic and basic surgery principle) resulting in severe contraction/mutilation of the scar pulling the external urethra opening and posterior urethra wall towards the cervix disturbing the continence/closing mechanism and giving rise to dyspareunia; even if the fascio rrhaphy has been ok this will undo the whole repair: repairing with the right hand and wrecking it with the left hand simply because one does not understand what one is doing; this is worth a full scientific article in a major gynaecologic journal
any incision in the anterior/posterior/lateral vagina wall must be parallel to the ruga folds; then it will heal without a trace



surgical repair of sphincter ani rupture
a complex trauma

kees waaldijk, MD PhD

introduction

Up till today the fresh, intermediate or old obstetric sphincter ani rupture constitutes a challenge to the obstetrician and the surgeon, in the industrialized as well as in the developing world since it is a complex trauma.

The major problem is that it looks so simple that even the most inexperienced doctor or even nurse dealing with obstetrics thinks (s)he can handle it: just a couple of sutures to close the visible tear without paying attention to the different individual anatomic defects. Partially to blame for this is the term 3rd of 4th degree perineum tear which places the emphasis wrongly on the perineum.

However, the surgical repair requires ample theoretical and practical knowledge of the anal continence mechanism in the female combined with expert skills in reconstructive surgery of the anorectum, sphincter ani muscle and perineal body (with posterior re-union of bulbocavernosus muscles), exact assessment/identification of all the individual lesions whilst the principles of septic surgery have to be applied since there is always stool contamination. Besides this, the rectum, anus and external sphincter ani muscle are delicate tissues which have to be handled with care otherwise there will be a substantial iatrogenic trauma.

The first thing one has to understand is that there are two different types of obstetric sphincter ani rupture; the first without and the second with necrotic tissue loss.

The most common type is associated with a wide pubic arch and wide pelvis where due to precipitous delivery the head of the baby cuts clear thru posterior vagina wall, the perineum, anterior sphincter ani, anterior anus and anterior distal rectum. There is (almost) no anatomic tissue loss since there is no mechanical obstruction of labor, so no pressure necrosis due to prolonged obstructed labor. Here one finds rupture of the perineum and perineal body with disruption of the posterior union of the bulbocavernosus muscles, rupture of the posterior vagina wall, rupture of the external sphincter ani and longitudinal rupture of the anus and distal rectum with rupture of the internal sphincter ani over 0-4 cm; the ruptured sphincter ani ends together with the anocutaneous junction are pulled into/inside the vagina due to tissue retraction. However, since most referred patients have been attempted at least once by inexperienced surgeons there may be (extensive) additional surgical trauma with anatomic tissue loss. Normally a one-stage procedure is sufficient to achieve good results.

The other type is in combination with real prolonged obstructed labor where the head of the baby gets stuck inside the birth canal. There is a combination with an obstetric urine fistula mostly with circumferential defect and often large amounts of anatomic tissue loss of more than only the distal rectum, anus and sphincter ani due to pressure necrosis such as subtotal loss of posterior vagina wall, loss of cervix, levator ani muscle loss, drop foot etc. The pubic arch and pelvis can be narrow, normal or wide. Right from the beginning most obstetricians and surgeons, experienced or not, shun away from this condition and refer these patients to the fistula surgeon. Unfortunately, many perform a colostomy in order to do something which in the developing world makes the patients even more a social outcast. Here a 2- or more-stage procedure may be necessary to achieve satisfactory results though in a few patients the condition is inoperable since there is nothing left to reconstruct.

Through continuous theoretical, clinical and surgical research and evidence-based results since 1984, the author developed a systematic reconstructive surgery approach with meticulous attention to detail keeping the additional surgical trauma to a minimum.

preparation

Timing of operation: as soon as the wounds are clean the patients is considered to be suitable for operation unless her general condition does not permit it. Since the principles of septic surgery are being applied inflammation is no contraindication. Preparation of the patient by clinical check of general health and (an)emia. Since it is not possible to give enemas for whatever reason and the patient is not willing to stop eating the preoperative instructions are no food the night before and the morning of the operation, and bowel movement the morning of operation and drinking until the operation.

reconstructive operation technique

All operations are performed under spinal anesthesia and in the lithotomy position. Just before the operation is started and under spinal anesthesia, the pubic arch is measured as well as the anterioposterior diameter of the pelvis, then a final assessment is made of the complex trauma with special attention to eventual pressure necrotic lesions.

The operation can be divided into five different steps:

a. Stretching the anorectum trauma into a straight horizontal line to facilitate incision and dissection by bilateral fixation of the skin next to both external sphincter ani ends onto the inner sides of the legs.

1. Straight longitudinal incision from one sphincter end to the other at the posterior vagina wall/distal rectum edge with freshening of the sphincter ends

2. Sharp dissection of the posterior vagina wall from the distal anorectum with freshening of the torn external sphincter ends but only minimally to such an extent that closure becomes possible without tension; extensive dissection is avoided because it is not necessary and will lead only to bleeding; if necessary sharp/blunt freeing of adhesions between the rectum and surrounding tissue and/or sphincter ends and surrounding tissue to achieve a tension-free repair; this may be found if the patient has been operated before

b. Then the stretching sutures are being removed otherwise they would hinder the closure of the rectum, anus and sphincter by pulling exactly the opposite way

These have only been done as preparation for the real reconstructive surgery which is executed in three phases.

3. Longitudinal closure of the distal anterior anorectum and anterior anus by a layer of interrupted inverting polyglycolic acid sutures thru the prerectal fascia and muscularis (= internal sphincter) starting 1 cm proximally from the anorectum defect and up to the very distal end of the anterior anus; special care has to be given to the most distal suture at the anocutanous junction which should start inside the mucosa thru muscularis of one side and then thru muscularis/mucosa on the other side and back; if this suture has been tied inside the anus the internal sphincter has been adapted over its full length and the inner ring of the external sphincter should be adapted (as check if the anterior anorectum defect really has been totally repaired); this layer is for strength of the anorectum (= internal sphincter) repair

The first layer is inverted by a second layer of continuous polyglycolic acid for an air-tight closure, and then the smooth-muscle internal sphincter has been repaired over its full length.

This part of the reconstruction is the most important since it is the internal sphincter which is predominantly responsible for a continuous closure of the anus due to the tonus of its smooth-muscle circular arrangement.

If there is anything that would endanger the repair, e.g. major tissue loss due to pressure necrosis, the operation is ended as a first stage and the reconstruction of the external sphincter postponed as a second stage.

4. The striated-muscle external sphincter ends are identified and without any further dissection the freshened sphincter ends are united in an end-to-end manner by 2 separate polyglycolic sutures making sure the external sphincter is really picked up by pulling onto the sutures before tying.

5. To restore the anatomy and shape of the vulva/perineum and to support the sphincter mechanism the perineal body is repaired by 2x polyglycolic acid sutures taking deep bites also para-anally; at the same time there will be (in)direct posterior re-union of the bulbocavernosus muscles.

c. After tying these sutures there should be a normal-shape vulva with the perineum adapted; if it does not look normal then the repair is not alright.

d. The posterior vagina wall is left intentionally open according to the principles of septic surgery since the vagina and the perineum are always contaminated and thus ensuring free drainage of bacteria, wound fluid and small blood clots.

e. After careful check upon hemostasis, the patient is transferred to the postoperative ward

remarks

The art is to reconstruct the stool continence mechanism step by step whereby slowly but very visible; after each step the normal functional anatomy is being restored and the (anterior) anus comes to lie secured in its anatomic distal position outside the vagina and slightly protruding; everything should look normal

postoperative instructions and follow-up

Full mobilization should be started the morning after operation day, no solid food for 10 days and a stool softener like liquid paraffin for 10 days. After each bowel movement the perineum/anus has to be cleaned carefully by water and then completely dried. Sitzbaths are contraindicated, unless it should become septic, since this will soften the repaired tissue and infection will be more frequent; normally the less one does about an operation wound the better it heals.

Ten to 14 days postoperatively she will be asked about defecation and stool/flatus (in)continence with complete inspection/examination of the operation site.

If it has healed she will be discharged, instructed to refrain from sex for at least 3-4 months and told to come back 1 month later when the same procedure will be repeated up to 5-6 months postoperatively.

During her whole stay as well as at each follow-up she is instructed about personal hygiene and that she has to report when 3 months pregnant, to attend antenatal care and to deliver in a hospital.

If it has not healed she will also be discharged and instructed to come back after 3 months for another repair which is done according to the same principles as if it were the first.

If it has healed with slight incontinence she is reassured this will improve over 2-3 months since the tissues need time to heal completely due to strengthening and re-arrangement under physiologic stress.

If the patient complains of gross flatus/stool incontinence a meticulous examination is done to exclude a minute blow-out fistula or a really loose external sphincter ani, and action taken accordingly.

Normally the highly qualified and well trained theater staff is responsible for the follow-up; only if there are problems the surgeon will see and examine the patient.

All things are meticulously documented by computerized operation reports including all relevant data, by schematic drawings, by digital pre-, intra- and/or postoperative photos and by written down postoperative check-ups up till 6 months postoperatively; that is the real strength of the programme since it provides evidence-based results.

results

Since 1984 a total of 582 patients have been operated by the author out of whom more than 90% had been operated already elsewhere.

After first attempt by the author 525 patients (90%) were completely ok whilst 40 had a complete breakdown (including the 3 inoperable patients) and 16 had developed a blow-out distal rectovaginal fistula whilst 1 patient died from hepatorenal failure after taking native medicine.

After repeat operation/s) by the author finally 570 patients (98%) had healed completely with full stool/flatus continence.

discussion

The presented technique is a minimum-invasive straightforward approach with the objective to reconstruct only the affected individual structures under the philosophy that in surgery only the necessary has to be done, nothing more but also nothing less; however, this has to be done very well with meticulous attention to detail. The job of a surgeon is to bring tissues together in such a way that they will unite completely and that after healing the normal anatomy and physiology will be restored.

The dissection should be restricted to the minimum to avoid bleeding and additional surgical trauma; only if there is excessive scar tissue this should be excised up to the prerectal fascia/anorectum muscularis but the edge of the anorectum should not be trimmed which would mean removing valuable muscular tissue.

In repairing the distal anorectum as first phase of the reconstruction it is the muscularis (= internal sphincter) together with the prerectal fascia that is being taken up by the sutures and not the mucosa as being described in other studies; otherwise, the internal sphincter being the most important part of the anal continence mechanism would not be reconstructed. The first interrupted layer is for bringing the tissues together and for security should the continuous suture break. The second continuous layer is for airtight closure and for complete approximation of the internal sphincter. Since the anorectum is composed of very delicate tissue, instrumentation and tissue handling is of utmost importance whilst care should be taken minimum tension is applied in tying the sutures bringing the tissues together. If at the end of this stage the inner ring of the external sphincter ani is not adapted it means there remains a defect in the distal part of the internal sphincter which may lead to incomplete anal continence.

The external sphincter is reconstructed as the second phase of the reconstruction by uniting the freshened ends in an end-to-end fashion without separate dissection/ mobilization of the sphincter keeping the surgical trauma to the minimum; this will restore the normal anatomy. In the very beginning the author used the overlapping technique but gave it up since it is nonanatomic and nonphysiologic with additional surgical trauma. However, after 2-3 years the end result will probably be the same clinically, anatomically and physiologically due to re-alignment and re-arrangement of the sphincter ani muscle fibers under physiologic stress. If it can happen after fractures with bone tissue where re-alignment and re-arrangement is slow it certainly can happen with muscular tissue where re-alignment and re-arrangement is faster. Though officially the external sphincter ani muscle is divided into 3 parts with different functions over in total 3-4 cm around the anus this can not be found in the living female where it is only some 1 cm thick.

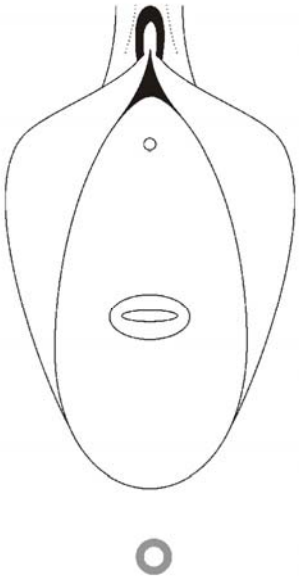
The perineal body is repaired as the third phase of the reconstruction in order to restore the normal anatomy and shape of the vulva/perineum and as support for the anal continence mechanism; by reconstruction of the perineal body also the bullbocavernosus muscles (which radiate into the perineal body) will be re-united posteriorly.

The posterior vagina wall is left open intentionally, since the (distal) vagina and perineum are always contaminated, in order for drainage and spontaneous evacuation of bacteria and small blood clots. Once the rectum, a high-pressure organ, has healed the vagina, a low-pressure organ, will always heal.

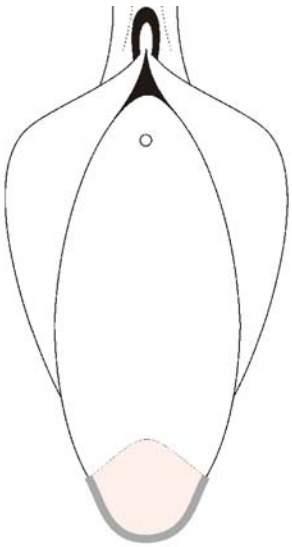
In contrast with techniques described in other studies, the levator ani muscle is left untouched since first it is not traumatized, second it would mean creating a nonphysiologic situation with additional surgical trauma and third it could lead to dyspareunia if united too tight anteriorly over the anorectum.
The repair is an example of major reconstructive surgery whereby after identifying the individual lesions, each defect is being repaired systematically step-by-step one after the other in a predictable and logical way. Though normally the whole repair can be executed in one stage, in complicated cases it should be performed in stages beginning with reconstruction of the anorectum and internal sphincter as first stage, and if healed and only if necessary, since most patients have no complaints once the internal sphincter has healed, with reconstruction of the external sphincter and perineal body (with posterior re-union of bulbocavernosus muscles) as second stage. Though in the industrialized world there is an indication in the last group of patients for a sigmoidostomy to ensure healing and then closure of the sigmoidostomy after complete healing, this is not indicated in the developing world.
Still there remain few patients in whom the reconstruction of the anorectum and external sphincter is not possible due to subtotal loss of these and other intravaginal structures reminding us that there are limits to reconstructive surgery how skilful and resourceful the surgeon may be. Though in the industrialized world an end-standing sigmoidostomy would be the alternative, this is not an option in the developing world where the only care is a piece of black plastic tied around the waste and covering the colostomy opening. The patient is not helped by it and it makes her even more a social outcast and very unhappy. Therefore the author never performs a colostomy in his obstetric fistula work.
Though normally the results are ok, this is not always so as demonstrated by an obese patient who needed 7 operations, 5 operations in a university teaching hospital, then only anorectum closure with internal sphincter repair as first stage and then external sphincter ani reconstruction as second stage; then she was ok,
Though normally the obstetric trauma is to the anterior part of the external sphincter ani muscle, three patients presented with a defect in the posterior sphincter ani without trauma to the perineum and anorectum but with an obstetric urine fistula due to prolonged obstructed labor. The mechanism is not quite clear (localized pressure necrosis due to compression of the posterior sphincter ani against the coccyx?), and since they were completely continent and seen within one month of delivery no operative procedure was carried out since in the author’s opinion it would heal spontaneously; they did not return for this condition.

conclusion
This operation technique is highly effective since the normal functional anatomy is reconstructed/restored and with it the physiology; it can also be recommended to the industrialized world as standard.

sphincter ani rupture

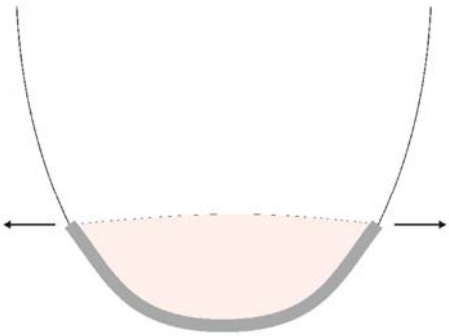


sphincter ani

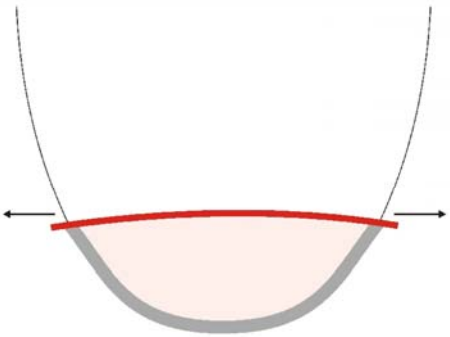


sphincter ani rupture

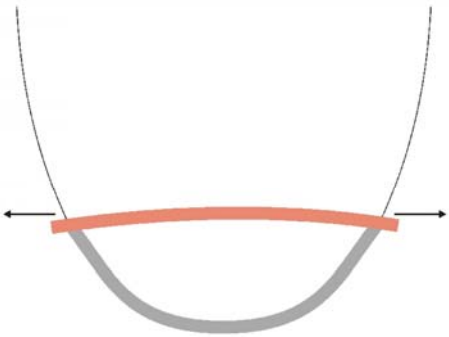
sphincter ani rupture



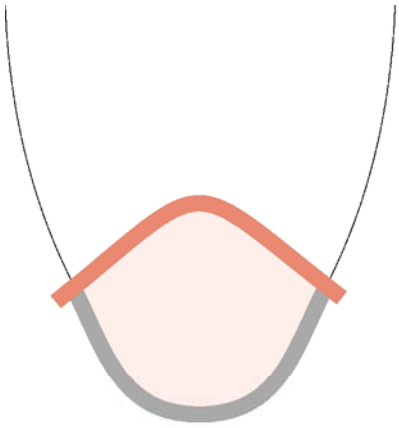
sphincter ani rupture
bilateral stretching sutures



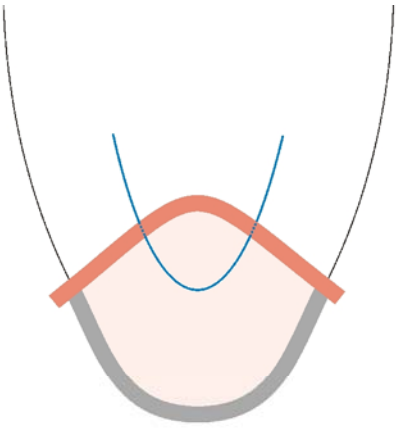
sphincter ani rupture
incision



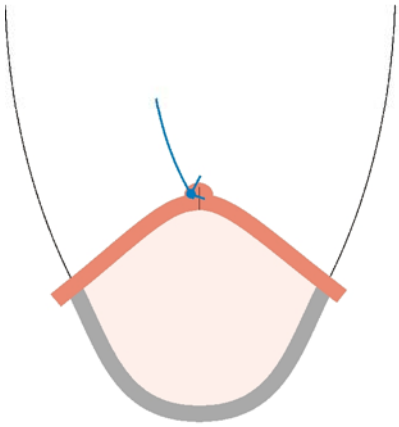
sphincter ani rupture
dissection



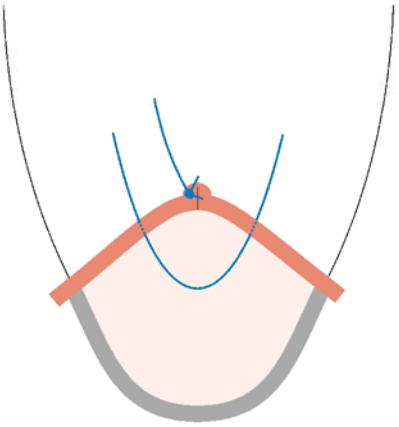
sphincter ani rupture
stretching sutures removed



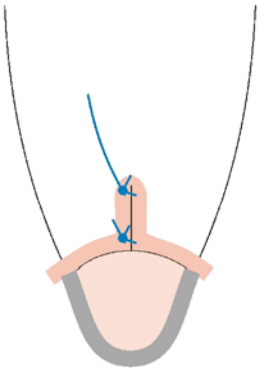
sphincter ani rupture
first suture



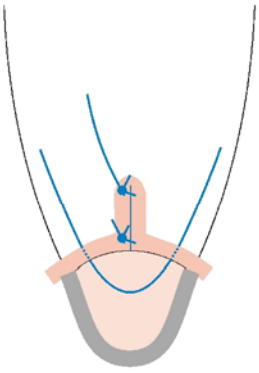
sphincter ani rupture
first suture tied



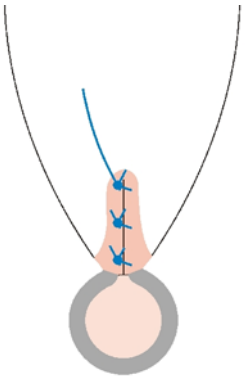
sphincter ani rupture
second suture



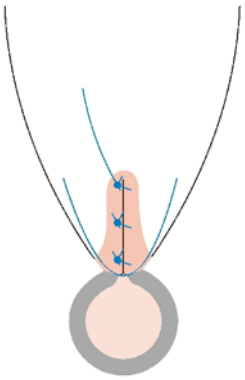
sphincter ani rupture
second suture tied



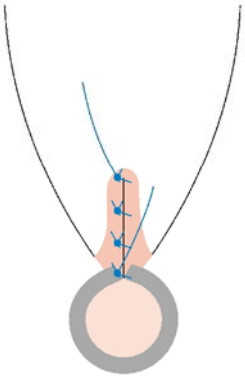
sphincter ani rupture
third suture



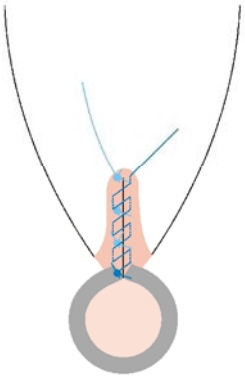
sphincter ani rupture
third suture tied



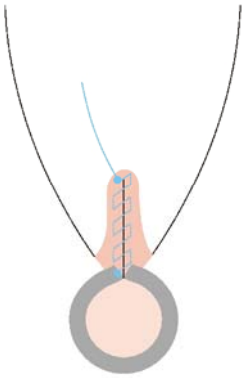
sphincter ani rupture
fourth suture



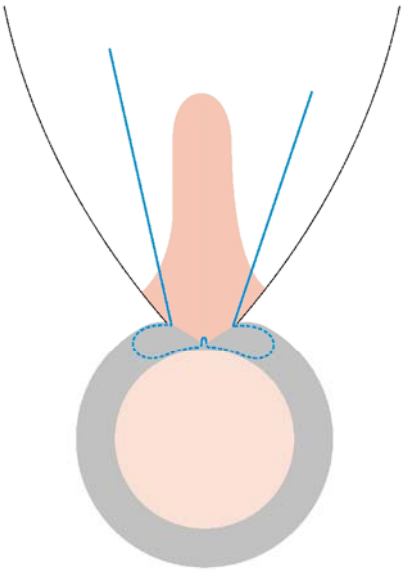
sphincter ani rupture
fourth suture tied



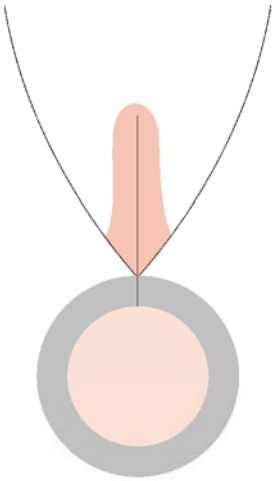
continuous suture



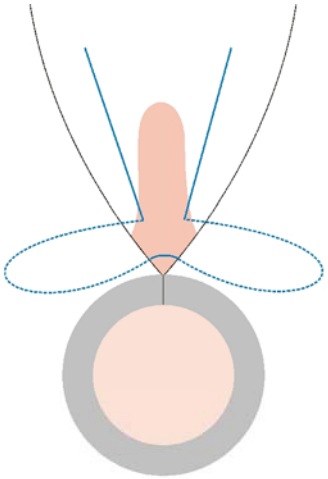
continuous suture tied
inner ring sphincter adapted



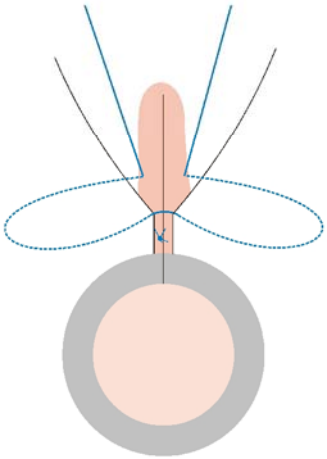
sphincter ani reconstruction
end to end by two sutures



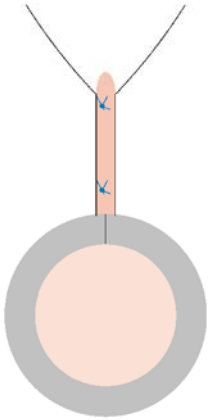
sphincter ani reconstructed



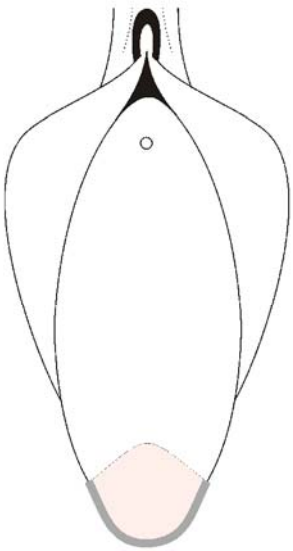
perineal body repair



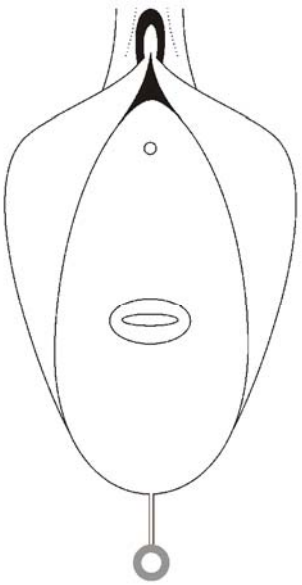
perineal body repair



perineal body repair
sutures tied, perineum adapted



sphincter ani rupture



sphincter ani reconstructed

total cervix prolapse

a mini-invasive operation technique
keeping procreation intact

introduction
since we deal with the obstetric trauma in all its forms many patients come forward with total 3° cervix prolapse; there are 2 types and mechanisms

type I
wide pubic arch $\geq$ 90-95° (pelvis inlet too broad): since the distance is too wide and the abdominal pressure too much for the cervix or during labor the cervix comes too much down and the cervix/uterus pull onto the sacrouterine ligaments and pubocervical fascia dragging these structures with it down and outside the vulva; since the bladder/urethra are anteriorly adherent to the symphysis/abdominal wall the posterior bladder is dragged with it since it is adherent to the pubocervical fascia with an increase in bladder capacity (longitudinal diameter > 15 cm); during this process the urethrovesical junction and proximal urethra open up (vesicalization) with a decrease in urethra length whilst the continence potential within the urethra shifts distally towards the external urethra opening with narrowing of the distal urethra and external opening; normally the patient is fully continent even with a remaining urethra length of only 0.5-1 cm even after reduction of the prolapse since the anterior pubo-cervical fascia is intact with an intact fixation onto the paraurethral arcus tendineus fasciae; this is the type commonly seen in the industrialized world where ageing processes play a role as well; in the developing world it may be seen also in young girls of 14-15 years after only one delivery

type II
narrow/normal pubic arch in association with extensive obstetric tissue trauma: circumferential fistula whereby the sacrouterine ligaments have been lost or seriously damaged by pressure necrosis due to obstructed labor

operation technique
though theoretically an endoscopic extraperitoneal reconstruction of the sacrouterine ligaments is the ideal operation technique, over the years a mini-invasive operation was developed (and perfected in 2006) as following

under spinal anesthesia and in the exaggerated lithotomy position the pubic arch is determined in degrees, the longitudinal bladder diameter in cm and the urethra length in mm and a final examination made; a FOLEY Ch 18 catheter is inserted into the bladder and the bladder drained partially to avoid traumatizing it during operation, the cervix is reduced and a 2-cm long incision made in the L lateral vagina wall parallel to the ruga folds for a right-handed surgeon (R for a left-handed surgeon) with a transverse extension perpendicular to the ruga folds up to the cervix; the anterior vagina wall is dissected in order to have a good wound area for better fixation; then without further dissection two thick nonabsorbable nylon sutures 2/5 are placed thru the superior pubic bone periost/arcus tendineus fasciae/arcus tendineus of levator ani muscle/internal obturator muscle/levator ani muscle and then thru the posterior cervix with the first suture and thru the anterior cervix (with adherent pubocervical fascia) with the second suture; after bringing the cervix into contact with the levator ani muscle these sutures are tied without a loose loop so that the cervix (with adherent pubocervical fascia) comes into direct broad contact with the levator ani muscle

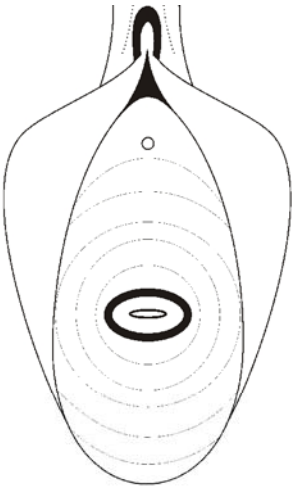
the urine is checked for blood which would mean the bladder has been traumatized but since everything is performed under direct vision this has not happened; the anterior vagina wall is left open in close contact with the lateral side; then the fixation is checked, the amount of elevation at the L side estimated and again the urethra length measured; also the patient is asked to cough in order to check if there is urine incontinence; a careful check upon hemostasis is made, and the patient transferred to the ward
the nonabsorbale sutures are removed 6 months after operation though they could remain far longer since they are monofilament nylon

remarks
the fixation is performed only unilaterally to keep the operation to the minimum; as well only a large cervix could be fixed bilaterally this way since otherwise the cervix would tear out; if it should fail or if the patient is not satisfied with the result the other side can be fixed at a separate session
it does not make sense to perform a hysterectomy since it complicates the operation unnecessarily; an additional surgical trauma; as well the young patients would like to have more children and the elderly patients only want the cervix to be inside
normally at the end of the operation there is no sign of urine incontinence, the urethra length has increased by at least 0.5-1 cm (re-urethralization) since the pubocervical fascia (adherent to the cervix) has been tightened by its fixation onto arcus tendineus fasciae; as well there is no longer cystocele though there may be some rotational descent on the side opposite to the fixation

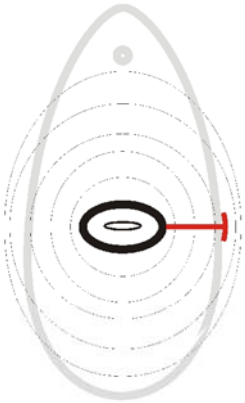
preliminary results
since 2006 a total of 69 patients have been operated this way in katsina, kano and zaria where we have reliable follow-up data
the age of the patients varied from 15 to 75 years; the age at development varied from 11 years (nulliparous girl) to 55 years; in 10 patients it developed after their first delivery (para I) and in 28 patients below the age of 20 years; the duration of the prolapse varied from 2 months to 50 years
only 5 patients complained about urine incontinence whilst masked incontinence could only be demonstrated in 1 patient
in 1 patient the prolapse was combined with a type IIAb fistula which was repaired in the same session; in 1 patient the prolapse followed after 7x (un)successful repair of IIBb fistula
the majority of 61 patients had a wide pubic arch of $\geq$ 90-95” whilst 5 had a normal pubic arch of 85° and only 3 had a borderline pubic arch of 80°
there were no pre-, intra- or postoperative complications; the real operation duration was 5-15 min
at operation end the urethra length had increased by at least 0.5-1 cm in all patients except for 2 patients with a urethra length of 1 cm
out of the 69 patients the fixation was not successful in 4 patients; 2 of these were operated again with good result
all the patients were totally continent after operation, even the 2 patient who in the end were still having a prolapse
four patient reported back whilst pregnant without any complaint

conclusion
this is a very promising technique, also in the industrialized world, and has become the standard operation

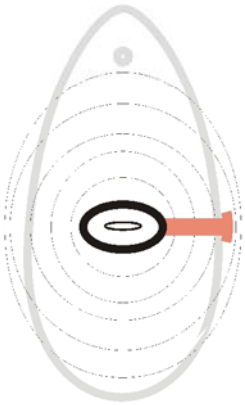
total cervix prolapse



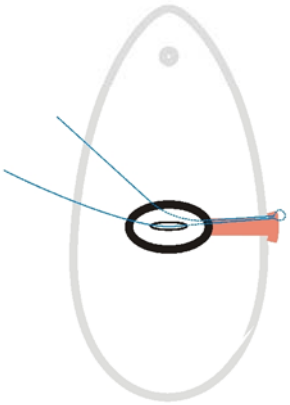
total cervix prolapse



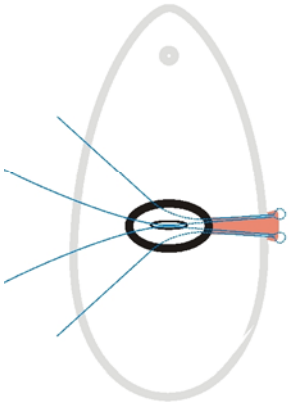
total cervix prolapse
incision



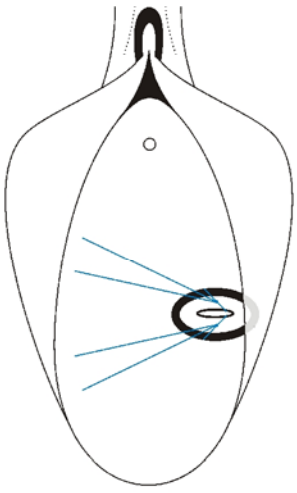
dissection of anterior vagina wall



first fixation suture
thru anterior cervix



second fixation suture
thru posterior cervix



end result
fixation sutures tied without loose loop

yankan gishiri fistula
with a report on 577 patients

introduction
in times of special interest in female genital cutting (and raised awareness of traumatic/obstetric fistula), there is one form in the hausa/fulani population of Northern Nigeria and Southern Niger which has received little attention except for mentioning
the **yankan gishiri** (literally **salt cut**) is a traditional practice whereby a longitudinal cut is made into the anterior and/or posterior vagina wall using a sharp instrument as performed by the traditional barber (**wanzami**) using a knife or by the traditional birth attendant (unguwar zome = **ungozoma**) using a razor blade with the patient in lying, sitting or squatting position, for a variety of conditions; most times local herbs or a concoction of them are put into the vagina for blood loss, pain and healing
sometimes other persons perform it like the patient herself or somebody else; even doctors seem to do exactly the same during their operation
there are 3 forms: scratching/superficial cut (scarification), deep cut (-tomy) and excision of tissue (-ectomy), the latter two resulting in fistulas from small to extensive
though far more names are given to the procedure yankan gishiri seems to be the generally accepted term
it is not possible to give an incidence or prevalence rate as only the patients ending up with a fistula come forward for treatment

materials and methods
during the 25-year period 1984-2009 a total of 577 patients (3.75%) out of the 15,389 patients who were operated upon by the author in hausa land presented with a yankan gishiri fistula: 523 (3.8%) out of the 13,793 vvf patients and 54 (3.4%) out of the 1,596 rvf patients
it had been performed by wanzami in 439 (76.1%), by ungozoma in 89 (15,4%), by doctor in 23 (4.0%), by herself in 19 (3.3%) and by others in 7 (1.2%) see table 1

table 1 practice of yankan gishiri in 577 patients
In northern nigeria and southern niger

by local barber (wanzami) using knife - lying position	439 (76.1%)
by TBA (ungozoma) using razor blade - sitting position during labor	89 (15.4%)
by patient herself using razor blade - squatting, mirror in front, candle	19 (3.3%)
by doctor as operation procedure	23 (4.0%)
by others like mother, sister etc	7 (1.2%)

the reason for yankan gishiri was: ba hanya in 346 (60.0%) (psychoconversion 221, malformation 125), obstetric in 80 (13.9%), prolapse in 63 (10.9%), pain/itching/boil/abscess in 27 (4.7%), infertility in 24 (4.2%), urine retention etc in 16 (2.8%) and miscellaneous, e.g. headache, in 21 (3.6%); 4 patients had an obstetric yankan gishiri fistula combined with a caesarean section fistula; see table 2

table 2 reason for yankan gishiri in 577 patients

ba hanya	346	60.0%
- psychoconversion 221 (38.3%); malformation 125 (22.4%)		
obstetric	80	13.9%
prolapse	63	10.9%
pain/itching etc	27	4.7%
infertility	24	4.2%
urologic problems	16	2.3%
miscellaneous	21	3.6%
- headache, chest pain, abdominal pain etc		

the majority of the vvf patients, 402 (76.9%), had longitudinal urethra loss type IIBa or even IIBb; 84 (16.1%) had type IIAa fistula and 18 (3.4%) had type I fistula whilst 19 (3.6%) reported with post IIBa repair total incontinence
of the 54 patients with a rvf 44 (81.5%) had distal type IIa fistula, 6 (11.1%) had sphincter ani trauma as well type IIb and 4 (7.4%) had proximal fistula type I; as well 31 patients had both rvf and vvf

table 3 fistula type

vvf in 523 patients		
urethra loss IIBa or IIBb	402	76.9%
type IIAa	84	16.1%
type I	18	3.4%
post IIBa incontinence	19	3.6%
rvf in 54 patients		
distal type IIa	44	
distal type IIb	6	
proximal type Ia	4	

the age at yankan gishiri varied from 7 days up to 72 years with the majority 266 (47.8%) at 11-15 yr
the resulting fistula was small in 122 (21.1%), medium in 200 (34.7%), large in 125 (21.7%) and extensive in 111 (19.2%), whilst 19 patients (3.3%) presented with post IIBa repair total incontinence III
to demonstrate the fact that fistula surgery is never simple, 125 patients (22.4%) had been operated already from 1 to 6 times

table 4 some other relevant data

yankan gishiri constitutes 3.75% from all patients
age at yankan gishiri: from 7 days up to 72 yr with majority in age group 11-20 yr
fistula size

- small	122	21,1%
- medium	200	34.7%
- large	125	21.7%
- extensive	111	19.2%
- total incontinence	19	3.3%

operation
all operations were carried out under spinal anesthesia with the patient in the exaggerated lithotomy position
the operation technique was customized to each specific fistula

results
since reliable follow-up exists in only 3 out of the 11 centers in hausa land the results are given for 494 patients; see table 5

table 5 final postoperative results in 494 patients

out of **449 patients with urine fistula** after 1 or more (up to 7) operations				
fistula healed			438	97.6%
- with full continence	404	92.2%		
- with stress I-II	21	3.8%		
- with total incontinence III	13	3.0%		
residual fistula			10	2.3%
mortality due to native medicine			1	0.2%
out of **45 patients with stool fistula** after 1 or more (up to 2) operations				
fistula healed with continence			45	100%

out of 449 patients with urine fistula 438 (97.6%) had healed with in 404 (92.2%) full continence, 10 (2.3% had residual fistula and 1 patient (0.2%) died 2 days after repair due to native medicine; after 1 or more (up to 7) operations
out of 45 patients with stool fistula 45 (100%) had healed after 1 or more (up to 2) operations

discussion
cutting into the vulva or the vagina to widen it because of dyspareunia is an old-standing belief that even in modern gynecology existed until recently (some 40 years ago), and perhaps still exists
the low incidence of 3.75% of all fistulas in this study is due to the fact that it is based upon the actual findings; in sharp contrast to the far higher figures in other publications where the author(s) were either not involved in obstetric fistula surgery and/or never saw a yankan gishiri fistula
contrary to what one might belief the yankan gishiri fistula is not easy to manage since most of the time a continent urethra has to be reconstructed in a situation with some kind of (up to extensive) -ectomy
the incidence of yankan gishiri fistula is not known since only when the procedure results in a fistula the woman will come forward for surgical repair
the name **gishiri** (literally **salt**) seems to symbolize many conditions in hausa culture and language; where does the name generate from though
there are two explanations for its name; first the cutting is performed in the same way as in ancient times the handler in the market was cutting the salt blocks brought by camel caravans; second, the vagina is considered to be the “salt of life”
the most common reason for yankan gishiri is the **ba hanya** in young girls who refuse to have sex with their husbands probably because they do not like the man; then by psyhoconversion they claim there is **no road** so no one is insulted or blamed
how is it possible that this very mutilating procedure exists in the hausa/fulani culture where female circumcision is not being practiced
anthropologic research into this highly interesting phenomenon is long overdue

yankan gishiri	=	salt cut
yankan belu	=	urethra cut, uvula cut
yankan beli	=	cut for hymen
yankan dankali	=	cut for cystocele (potato)
yankan (an)guriya	=	ritual scratch by knife in newborn girls
yankan gyara	=	
yankan jini	=	blood cut
yankan kakanda	=	cut for something blocking the place
yankan koko	=	calabash (?cystocele?)
yankan zul-zul	=	salt cut (different dialect)
yankan kare	=	episiotomy in hospital
yankan tsatstsefa	=	salt cut (different dialect)
yankan tsigai	=	cutting of pointed boil (like arrow)
yankan zir-zir	=	salt cut (different dialect)
yankan zul-zul	=	salt cut (different dialect)
tsagar gishiri	=	salt cut (different dialect)

wanzami	=	traditional barber		
ungozoma	=	traditional birth attendant	=	**unguwar zoma**

ba hanya	=	no road	=	**ba hanyar aure**
ba kofar	=	no gate	=	**ba kofar aure**

first edition: april 1996

last edition: december 2008

within one week we saw a patient who started to fit whilst in line for operation, a patient who fitted whilst in line for first examination; a patient who fitted the day after an indwelling bladder catheter had been inserted and a patient who fitted the evening/night after operation; all patients recovered uneventfully

the mother of the last patient told us: it is exactly the same before/when she delivered

then the pieces of the puzzle fell into place; and I cannot understand why it took so long: **pre-, intra- and postpartum eclampsia**

this again confirms how serious eclampsia is in the developing world: not only in primigravidae(parae) but also in multigravidae(parae) pre- intra- and postpartum up to months after delivery

the mechanism postoperatively seems to be a blood pressure rebound effect after the spinal anesthesia

previously we had thought that the fitting might have been due to hyponatremia since the patients have to drink (PhD thesis 1989); though there is a slight theoretical possibility it is practically almost impossible to develop this by oral fluids only

however, since I familiarized myself with eclampsia this seems to be the explanation for this phenomenon of so far unexplained fitting

though I always thought that eclampsia was only happening in primigravidae/parae and only pre- and intrapartum; now I have been told by my staff that they see it in any gravidity/parity with devasting effects on mother and child being a major cause of perinatal infant mortality and of maternal mortality

from that moment onwards we asked and ask any patient systematically about eclampsia and if she has experienced it she was and is given 5 mg valium orally as a single dose the evening after operation only at 19.00 to 20.00 hr

we started with a single low dose of 5 mg diazepam; though magnesium sulphate may be a superior drug this is not available

if this should not be sufficient we always can increase the dose or look for other ways to prevent it, but since we started with this regimen we have not encountered it any more

therefore we would like to stress and recommend the following

please ask when taking the history also about eclampsia and if the patient or her relative(s) confirm this, administer 5 mg valium orally as a single dose the evening of the operation

there are several general and/or specific objectives: to operate a large number of patients within a short time, to demonstrate the **state of the art** operation techniques, to give high-quality lectures, to tackle a specific problem (stress incontinence, urinary diversion), to promote spinal anesthesia, to initiate doctors with low experience, to further train doctors with experience on an advanced level, to train nurses at all levels, to start a vvf service in a certain area and for advocacy and publicity

duration
from a minimum of 2-3 days to start a vvf service up to 2 weeks if large numbers of patients are available and reliable postoperative care can be secured

minimum number of patients
for a 1-week workshop 25-30 patients and for a 2-week workshop 40-50 patients, otherwise there is no cost-benefit effect

venue
any hospital which can handle the (large) number of patients to be operated within a short time: operation theater, autoclave, pre-/postoperative beds and trained personnel

equipment
if one/two fistula surgeon-trainer: one/two fistula operating table(s) with one/two full set(s) of instruments

pre-workshop screening
the (fistula) doctor of the hospital together with his staff is responsible to collect and screen the patients already far in advance
the logistic officer has to make all the necessary arrangements for accommodation, feeding and transport etc

facilitators
one or two experienced fistula surgeon-trainers, one or two experienced fistula operation theater nurses, one or two experienced spinal anesthesia nurses or doctors and two experienced pre-/postoperative nurses and one logistic officer

trainees
per trainer 3-4-5 doctors together with their operation theater nurse, their anesthetic nurse and their pre-/postoperative nurse
however, if the workshop is meant to start a vvf-service more doctors and especially more nurses and midwives should attend

workshop day-by-day
first day: opening, introduction, questionary by trainees for self evaluation and then history taking and examination of the patients, operation time-plan for each day
from second day onwards: wardround, operations with step-by-step demonstration of state of the art techniques, simple operations by the trainees under close supervision, pre-, intra- and postoperative questions and answers, lecture(s) and wardround
last day: ward round, evaluation by all participants, handing out certificates, closure

postworkshop follow-up
the fistula doctor of the hospital and his staff are responsible for the further post-operative care and follow-up of the patients

philosophy
since the emphasis should be placed upon the quality and not the quantity it is better to execute small 4- to 5-day well organized workshops with small numbers of patients than large 10- to 14-day workshops with large numbers of patients where the organization on ground and good postoperative care being the weakest part cannot be ensured

optimal workshop
identify an area where the obstetric fistula is highly prevalent, select an obstetric fistula team, send them for training, this team selects and screens patients and then makes sure the conditions are ok, then invite real fistula surgeon(s) + team
the real expert fistula surgeon(s) + team in combination with the obstetric fistula team on ground screens all the patients for a final selection and sets the objectives
opening ceremony and handing out of a questionnaire for self-evaluation
starts operating whilst demonstrating the step-by-step technique followed by questions& answers about the procedure and theoretical lectures

the chief consultant + team (co)facilitated the following workshops

december **1999** workshop in machakos general hospital as a pilot study for kenya with surgery, questions & answers and lectures

february **2000** interstate workshop in babbar ruga fistula teaching hospital for katsina state as a pilot with surgery, questions & answers and lectures; this hospital participated in the unfpa fortnight as well

june **2000** first workshop for zamfara state as a pilot in faridat yakubu vvf hospital in gusau with surgery, questions & answers and lectures

octobe **2000** first workshop for république due niger as pilot in maternité centrale in zinder with surgery, questions & answers and lectures

october **2000** first workshop for kaduna state in hajiya gambo sawaba general hospital in zaria with surgerys, questions & answers and lectures

december **2001** first national workshop for tanzania as a pilot in ccbrt hospital and muhimbili medical center in dar es salaam with surgery, questions & answers and lectures

march **2002** second national workshop for tanzani in bugando medical center in mwanza with surgery, questions & answers and lectures

june **2002** first workshop in laure fistula center with murtala muhammad specialist hospital for kano state with surgery, questions & answers and lectures; this hospital participated in the unfpa fortnight as well

october **2002** first international workshop for burkina faso in centre hospitalier in dori with surgery, questions & answers and lectures

october **2003** first workshop for ebonyi state as pilot in ebonyi state university teaching hospital with only surgery

february **2004** national workshop for république du niger in centre hospitalier régional poudrière in niamey with surgery, questions & answers and lectures

december **2004** fourth national workshop for tanzania in ccrbt hospital in dar es salaam with surgery, questions & answers and lectures

february/march **2005** unfpa fortnight in kano state, katsina state, kebbi state and sokoto state where 591 operations were perfomed in a well established 20-year obstetric fistula repair and training program

october **2005** first workshop for jigawa state in jahun general hospital in jahun with surgery, questions & answers and lectures

february **2007** second workshop for kaduna state in newly contructed obstetric fistula unit in kofan gaya hospital in zaria with surgery, questions & answers and lectures

march **2007** second workshop for jigawa state in renovated jahun general hospital in jahun with only surgery

july **2008** workshop for république du niger in hospital national niamey in niamey with only surgery

november **2008** first workshop for yobe state in federal medical center in nguru with surgery and questions & answers

first (international) VVF workshop for Burkina Faso

Centre Hospitalier Régional

DORI

26th of october thru 2nd of november 2002

report

by

kees waaldijk MD PhD

chief consultant fistula surgeon

first VVF workshop for Burkina Faso

executive summary

this was the first VVF-workshop for Burkina Faso designed for a relatively small group of professionals all in order to raise interest and to upgrade the surgical (and other) skills and the theoretical knowledge of consultant gynecologists, doctors, perioperative/anesthetic nurses, midwives and other people involved in the obstetric (fistula) care in Burkina Faso

there were a **total of thirty-two participants** from **5 different countries** in **2 different continents**, viz Burkina Faso, Germany, Holland, Nigeria and République du Niger

we were very proud of the fact that 7 highly qualified gynecologists/lecturers from 5 University Teaching Hospitals in Germany and Holland attended to see with their own eyes **the complex trauma of the obstetric fistula** and to witness what can be done under "primitive" conditions; normally people from Africa travel to Europe for upgrading their knowledge; hopefully, this may be the start of more interest in the obstetric fistula which is highly prevalent in Africa **with some 1.5 to 2 million patients**

during the practical sessions a **total of 21 operations/procedures were performed in 17 patients** to demonstrate the basic surgical principles: 14 VVF-repairs, 3 RVF-repairs with(out) sphincter ani reconstruction, 2 urethralization/anterior fascio_colposuspension with(out) fistula repair, 1 vagina reconstruction (after VVF/RVF-repair) and 1 dilatation/catheter treatment for UV-stricture with atonic bladder

we were able to demonstrate catheter treatment, simple VVF-repair, circumferential UVVF-repair, ureter catheterization, RVF-repair, primary suturing of RVF, sphincter ani/perineal body reconstruction and vaginoplasty

we could show that all VVF and RVF surgery can be done under spinal anesthesia in the exaggerated lithotomy position by the vagina route

we could also demonstrate our latest development for the major complication in VVF surgery, viz (post)repair stress incontinence: urethralization and anterior fascio_colposuspension which has highly promising theoretical and practical potentials

by a questionnaire for self-assessment and by a total of four lectures the theoretical knowledge of the participants was tested and updated

since it took us four full days and 40 hours to travel by road from Katsina to Dori and back a report of this cruel 2,400-km journey is given as well

first VVF workshop for Burkina Faso

Centre Hospitalier Régional

DORI

26th of October thru 2nd of November 2002

report

introduction

during the year 2000 the consultant fistula surgeon Dr Kees was invited by Dr Jürgen WACKER, MD PhD, for a lecture about VVF in Germany; however, that would have made little sense as there are no obstetric fistulas in Europe

therefore it was decided to organize a VVF workshop for Burkina Faso where the obstetric fistula is as prevalent as in the rest of (West) Africa

first, Dr Yacouba ZANRÉ attended a 3-weeks' training and then the workshop was planned for October 2001 but had to be postponed for the obvious reason

as venue the newly built Centre Hospitalier Régional de DORI was selected since the organizer Dr WACKER was familiar with this town and hospital

the intention was a) to introduce the participants to the **complex trauma of the obstetric fistula** and then b) to demonstrate the **noble art of its (surgical) management** and c) to **stimulate interest** for further formal training of doctors and nurses from Burkina Faso in order **to establish a VVF-service for Burkina Faso** since it are the Burkinese people themselves who have to take care of their own health problems under their own conditions and within their own financial and other resources

also a selected group of interested consultant gynecologists/lecturers/students/midwives from Europe participated since they wanted to know more about the obstetric fistula

for a smooth organization of the workshop, Dr WACKER had sent out his team some time earlier to select VVF-patients from DORI and surrounding villages

to "save time" the team from Nigeria/République du Niger "traveled" by road from Katsina to Dori and back

since the consultant fistula surgeon had committed himself and the UN invitation came late, he could not attend the very important meeting **initiative against fistula** with the United Nations Fund for Population Activities in ADDIS ABABA in Ethiopia for which he had to send his deputy Dr Abdulrasheed YUSUF to represent him and the National VVF Project

traveling from KATSINA to DORI

saturday 26th
having loaded the old UNDP car, Peugeot stationwagon with 260,000 km on the meter, the 4-man-strong team from Nigeria/Niger left KATSINA at around 7.30 hr in the morning; at the border in JIBIYA/DAN_ISSA the République of Niger was entered where we continued via MARADI where we had our breakfast at the roadside, a bad road for some 60 km from pothole to pothole up to MADAOUA, via GALMI and BIRNI N'KONNI to DOGONDOUTCHI where we had lunch, after DOSSO the car started to shake but we could not locate the problem until the back tyre blow out (internal wreckage due to the potholes!!) and with the spare wheel mounted we arrived in NIAMEY for the night at 19.00 hr; the hotel was full but we managed to get another 11.5 hours in the car for 750 km!
the car was driven alternately by Kabir, Abdullahi and Kees; so who caused the blow-out?
our meeting with officials to discuss about a VVF-service in NIAMEY failed since no one turned up though we had trained a doctor from there recently

sunday 27th
at 7.00 hr we were up and to the mai shai for breakfast where Abdullahi got annoyed as there were no onions for his egg and he had to pay for the sugar in his coffee; then we bought a new tyre (!Belgian! type as the new one was too expensive) and before we started our journey at around 10.00 hr we paid a visit to the VVF ward in NIAMEY where some 250-300 patients are on the waiting list since no repair has been performed during the last 5 years
we heard all kinds of stories that the road up to DORI could only be managed by a 4-wheel driven car, but being a combination of Nigerians/Nigerien/ Dutcherian we wanted to see for ourselves and give it a try; Dr Lucien got hold of one of his in-laws willing to act as our guide up to TERA where we, during our lunch, were making an effort to either charter a truck or arrange for another guide up to DORI since we did not know the road; but after long deliberations we were told that at this time of the year any vehicle could pass and that the road was showing itself
per ferry over the river NIGER, a new experience for Kabir and Abullahi who had never been on a boat, and so we entered **no-man's land** without a guide, without a map and even without a road: only sand, scrub bush and few tracks with a big hump in the middle; however, some tracks were more "visible" and looked "better" than others but the sand was everywhere the same and many times we thought we got stuck in the middle of nowhere; we could not communicate with anybody since the 2 persons we saw on this "jouney" did not understand us and we did not understand them; we all felt like smugglers but we had nothing to smuggle; having covered some 40 km in 3 hours! we all of a sudden saw a hut with a pole and were happy to meet the borderpost where to our surprise we were told we were already in Burkina Faso; though they offered us water which we took happily since we had !none!, they wanted to see the car papers which we did not have since it is a UNDP vehicle; also this hurdle we passed but were told to show something on our way back
Abdullahi refused to drive so Kees took over from Kabir for the last 40 km and the low flying thru, over and under the sand started, the tracks became more, and more confusing, the car started to bounce, the luggage started to bounce and we started to bounce as well (poor Dr Lucien had to take voltaren for 2 days because of backache!) but we arrived "safely" in DORI after some 70-80 minutes instead of the 3 hours they predicted at the border

everything covered by sand, no distinction between car, luggage and/or passenger, we arrived at the guesthouse around 19.00 hr, local time 18.00 hr; we thanked Allah for having protected and guided us safely and we met with the other participants and Kees with his wife coming from Holland by air
Kabir and Kees made a deal that Abdullahi had to drive back all the way and the real workshop started 9 hours in the car to cover some 300 km!

DORI turned out to be a small town of only 25,000 inhabitants but with excellent infrastructure since we did not experience a single power break in the electricity or in the water supply during our 4-day stay; however, no tarred roads

the actual workshop

monday 28th

opening: after the opening ceremony by the mayor of DORI, the director of the CHR hospital, the military administrator and Dr Jürgen WACKER, we had a full tour of the beautifull Centre Hospitalier Régional, well built and well equipped

selection: having overcome the initial minor problems which are inherent to every workshop, e.g. an afternoon break from 14-16.00 hr, we could start with the examination/selection of the 19 patients at around 16.00 hr
we could not freely communicate with the patients since they were not speaking French but only their tribal language so we skipped our normal history taking and continued straight away with the systematic examination not only of the fistula but also of possible peroneal nerve trauma
we could locate the fistula, even on a normal examination table, immediately in 15 patients, decided to perform a dye test with gentian violet on the operating table the next day in 4 patients, and demonstrated the grading of peroneal nerve motor trauma resulting in drop foot according to the **M**edical **R**esearch **C**ouncil from 0-5, where
5 = normal, 4 = full movement but slight loss of muscle strength, 3 = half-range movement if the gravity is excluded, 2 = dorsiflexion of the toe(s), 1 = only a muscle twitch and 0 = no function whatsoever

tuesday 29th

surgery: we started 8.00 hr sharp with spinal anesthesia in the first patient and performed 7 operations in 6 patients, viz catheterization of the L ureter and UVVF-repair, circumferential UVVF-repair as first stage, simple UVVF-repair, simple UVVF-repair, extensive UVVF-repair with rectum closure/sphincter ani_perineal body reconstruction, and UVVF-repair as first stage
afterwards the dye test with gv was performed: 2 patients had a fistula, 1 patient had UV-stricture with overflow incontinence and 1 patient turned out to be a bed wetter

in the patient with UV-stricture, a gradual dilatation was done and a FOLEY Ch 18 catheter inserted
Q&A were asked/given during the 8 procedures and/or immediately afterwards and we finished at around 15.00 hr

wardround: all the patients were doing fine

lectures: due to some misunderstanding about the time this was left

wednesday 30th

wardround: all the patients were doing fine

surgery: from 8.00 hr till 15.30 hr 6 operations were performed in 5 patients, viz difficult bilateral ureter catheterization and circumferential UVVF-repair, closure/urethralization/fasciocolposuspension, catheterization L ureter and CS_VCVF-repair, urethralization/fasciocolposuspension of stress incontinence, and bilateral ureter catheterization and UVVF-repair with primary suturing of RVF

NB one patient collapsed in the waiting area before operation and was excluded from surgery during the workshop

lectures: Q&A during and immediately after the procedures in French, English, German and Amsterdam slang
classification of VVF with consequences for operation/prognosis
classification of RVF with consequences for operation only
urine continence mechanism in the female
urine incontinence in all its forms

wardround: all the patients were doing fine

thursday 31st

wardround: all the patients were doing fine

surgery: from 8.00 hr till 15.00 hr 7 operations were performed in 5 patients, viz simple VVF-repair in patient with 4-mth pregnancy, bilateral ureter catheterization and CS_VCVUVF-repair, CS-VCVF-repair, VCVF-repair, and a circumferential fixation of urethra/ bladder repair/RVF-repair/vagina reconstruction in 1 patient

wardround: all the patients were doing fine

this was the end of the workshop for the Nigerian/Nigerien/Dutcherian team

closing: we were all invited for dinner by Dr J³rgen WACKER and his wife Renate where lamb was served with rice and fish, a German song was presented by the Germans, the mayor held his final remarks, we heard some wisdom but could not understand it, we were all presented with a témoignage, and the ROTTERDAM team presented a "tableau vivant" after which the artist Kabir was given a book about Holland and the other members "drop"

traveling back from DORI to KATSINA

friday 1st

having loaded our car again, we left exactly at 7.00 hr; since we had decided to take another route because of the terrible tracks and the problem at the border, we took a guide to find the junction between DORI/OUGADOUGOU to FADA then we were on our own; Abdullahi had to drive, the road was not that bad but all of a sudden we ended up in the ditch since the driver lost control of the car trying to evade a goat and coming to standstill against a big stone; nothing serious happened except that some 1,000 m farther we had a flat tyre; the crick was a bit rusty/sandy so heavy work; we only saw and inhaled dust until we arrived in FADA where we had our brunch and got our tyre vulcanized; then for the first time we entered a tarred road up to the border which we crossed with the usual minor problems; again it was the car but we were able to produce a "laissez passer" where the plate number was recorded;

from the border at KANTCHARI we were again on a laterite road including potholes but we managed to arrive safely in NIAMEY at 17.00 hr and our hotel was full and we went to another; even after 5x shower with soap/ shampoo we were not clean 9 hours in the car for 575 km!
at night we had a discussion with members of a NGO "interested" in the VVF problem but they were not serious: the usual, we have become experts

saturday 2nd
having the car washed inside and outside including our luggage, we left the hotel at 8,00 hr since most of us wanted to have some rest; up to the mai shai where we had coffee, French bread with sardines in oil or even a full meal with fresh fried fish, sauce and tuwo; then we were ready to go on the last leg on the same road we had come but we could not make real progress, we could not get food (restaurants closed) except for some rotten suya that everybody in the car refused, until at last we came to MARADI at around 18. 00 hr where we dropped Dr Lucien in the car park on his way to ZINDER, another 250 km!, and we proceeded to the borderpost in DAN_ISSA/JIBIYA where we had real problems to enter Nigeria; in the dark Kabir drove home where we arrived at 19.30 hr 11.5 hours in the car for 750 km!

conclusion

it was a fine workshop where we finished what we had come for: all the VVF patients were operated upon except for the one who collapsed

we were able to demonstrate the complex trauma of the obstetric fistula and the basics of how to handle it

some practical and theoretical aspects were highlighted but since the time was limited not all could be shown

since a workshop is only a stimulation and cannot replace formal training, we hope to train some doctors and many nurses from Burkina Faso very soon as a priority for starting a VVF service in the country

the participants, the facilitators, the organizer and the patients were all happy

however, the strain of those 8 days was such that none of us is not willing to do it again

Kees WAALDIJK, MD PhD
chief consultant surgeon
National VVF-Project

first VVF workshop for Burkina Faso

list of participants

consultant gynecologists		
Dr Angelika BARTH, MD	FRANKFURT	Germany
Dr Clemens BARTZ, MD	KÖLN	Germany
Dr Wouter HUISMAN, MD PhD	ROTTERDAM	Holland
Dr Djangnikpo LUCIEN	ZINDER	Rép du Niger
Dr Tom SCHNEIDER, MD PhD	ROTTERDAM	Holland
Dr Bettina UTZ, MD	KUPPENHEIM	Germany
Dr Jürgen WACKER, MD PhD	BRUCHSAL	Germany
Dr Yacouba Z ZANRÈ	OUGADOUGOU	Burkina Faso
consultant surgeon		
Dr Kees, MD PhD	KATSINA	Nigeria
university lecturer/coordinator		
Mrs Norma van ZELST-WATERVAL	ROTTERAM	Holland
general doctors		
Dr Mahamadi CISSÈ	MaternitÚ CHR	DORI Burkina
Dr Yissou DAO	Surgery CHR	DORI Burkina
matrons		
Mrs Anata OUÈDRAOGO	Maternité CHR	DORI Burkina
Mrs Kadidiatou DICKO-ROUAMBA	Maternité CHR	DORI Burkina
Mrs Hadiatou Alou DICKO-DIALLO	Maternité CHR	DORI Burkina
Mrs Salamatou TRAORÈ	DIMOL	NIAMEY Niger
theater nurses		
Mrs FÚlicien TOUGOUMA	op theater CHR	DORI Burkina
Mr Djibey MAIGA	op theater CHR	DORI Burkina
Mrs HervÚ OUÈDRAOGO	op theater CHR	DORI Burkina
Mr Moussa OUÈDRAOGO	op theater CHR	DORI Burkina
Mr Marcel ZON	op theater CHR	DORI Burkina
Mrs Kako DOMBOUÈ	op theater CHR	DORI Burkina
anesthetic nurses		
Mr Albert T KOBIÉ	op theater CHR	DORI Burkina
Mrs Rouketou SAWADOGO-OUÉDRAGO	op theater CHR	DORI Burkina
Mrs Brahima TRAORE	op theater CHR	DORI Burkina
midwives		
Ms Heike BÍHNE	UBSTAT	Germany
Ms Sabine GRESSER	BRUCHSAL	Germany
Mrs Alizeta TIENDREBEOGO	Maternité CHR	DORI Burkina
Mrs Sabine ZOUNGRANA	Maternité CHR	DORI Burkina
facilitators		
Mrs Anata OUÉDRAOGO	Maternité CHR	DORI Burkina
Mr Kabir K LAWAL	B/Ruga Hosp	KATSINA Nigeria
Dr Djangnikpo LUCIEN	Maternité	ZINDER Niger
Dr Kees, MD PhD	National VVF Project	Nigeria
Dr Jürgen WACKER, MD PhD	Univ Hosp	BRUCHSAL Germany
Dr Yacouba ZANRÉ	Univ Hosp	OUGADOUGOU Burkina
logistics		
Mr Sebastian KAMMERER	med student	WIESLOCH Germany
Mr Abdullahi HARUNA	B/Ruga Hosp	KATSINA Nigeria

surgery

on Tuesday, Wednesday and Thursday surgery (**step-by-step demonstration of technique**) was performed from 8.00 to 15.30 hr after which the venue was changed for lectures and review of the surgical procedures

a total of **20 operations were performed in 16 patients whilst 1 patient was treated by catheter after dilatation of UV-stricture**, all because of fistula or fistula related problems like postoperative stress incontinence

things demonstrated were:

systematic examination of the obstetric fistula
grading of drop foot according to MRC scale, from 0 to 5
the importance of dye testing by gentian violet
the importance of pre- and postoperative high oral fluid intake
spinal anesthesia as the **anesthesia of choice**
exaggerated lithotomy position as the **position of choice**
the vagina as the access **route of choice**
vaginal surgery as a **one-man job**
two instruments inside the vagina is a crowd
liberal use of episiotomy(ies) to improve access
THOREK scissors as the only special instrument
sharp DESCHAMPS aneurysm needle for advanced fistula surgery
basic surgical principles
meticulous closure of the bladder
only adaptation/half-open closure of the anterior vagina wall
simple VVF-repair
minute fistula repair needing large incision/excision of scar tissue
complicated VVF-repair
circumferential repair by end-to-end vesicourethrostomy
CS_vesicocervicovaginal fistula repair
ureter catheterization
highly complicated VVF-repair
VVF-repair in a 4-mth pregnant patient with **no** blood loss
urethralization/anterior fasciocolposuspension for (postrepair) urine stress incontinence
dilatation of UV-stricture
primary suturing of small RVF
rectum closure with sphincter ani/perineal body reconstruction
simple RVF-repair
the solution to pollution is dilution
ba hanya = no road
vagina reconstruction by skin rotation flap in VVF/RVF with ba hanya

though many things could be demonstrated, the variety of obstructed labor resulting in the obstetric fistula and its treatment is such that the workshop was too short to demonstrate all, e.g. various types of urethra reconstruction with(out) various types of flaps etc etc

however, the **best advice** is to **insert a FOLEY Ch 18 catheter** for at least 4 weeks **immediately when urine leakage starts after delivery**; this will cure some 15-20% of the patients if they **drink at least 6-8 liters per day**

lecturer and topics

Dr Kees	Q&A about the surgical procedures
	classification of VVF with consequences for operation/prognosis
	classification of RVF with consequences for operation only
	urine continence mechanism in the female
	urine incontinence in all its forms

multiple choice questionaire

at the beginning of the workshop and the same at the end for **self-assessment** of the participants

venue

Centre Hospitalier Régional de Dori for the examination/selection/surgery
guest house for discussions/theoretical lectures

actual time of workshop

4 days of roughly 8 hours making a total of 32 hours + 40 hours traveling

sponsors

major sponsor

Rotary Club	BRUCHSAL	Germany
additional sponsoring		
SK_Foundation	AMSTERAM	Holland
TTT_Foundation	TIEL	Holland

thanks to

all the staff of Centre Hospitalier Régional DORI for their cooperation and dedication; and especially Mrs Aminata OUÉDRAOGO
Dr Yacouba ZANRÈ for the regional organization
Dr Djangnikpo LUCIEN for his contribution
all the participants for their interest in the obstetric fistula

special thanks to

Dr Jürgen WACKER and his wife Renate for taking fine care of all of us and of the overall organization

vvf workshop niamey

centre hospitalier régional poudrière

monday 16th thru friday 20th of february 2004

report

by

kees waaldijk MD PhD

chief consultant fistula surgeon

vvf workshop niamey

monday 16th thru friday 20th of february 2004

executive summary

since the obstetric fistula is prevalent all over africa there are also many patients in république du niger, and the team from katsina_zinder was invited as facilitators for a 5-day workshop in Niamey

we had three objectives in mind:

first to assess the severity of the problem

second to demonstrate the art and science of obstetric fistula surgery

third to work out modalities for a regular service

the severity of the problem was highlighted by the fact that in the Hôpital National there were nine patients who had been operated 5x, three patients who had been operated 4x, seven patients who had been operated 3x, six patients who had been operated 2x, ten patients who had been operated 1x, and only six patients who had never been operated making a total of 41 patients in need of surgery; as well during the workshop another 15 patients reported including one who had been been leaking urine for 30 years without attempted surgery

the art and science of obstetric fistula surgery was demonstrated by 30 procedures in 28 patients (2 patients with combination VVF_RVF) during the effective 4 full days of surgery; before, during and after operation the surgeon explained/demonstrated step-by-step the details of each procedure; also spinal anesthesia was demonstrated as simple, safe, effective and cheap; and one lecture was given about the urine continence mechanism in the female

the modalities for a regular service were discussed in a fine visit to the First Lady of République du Niger, with the Minister for Health, with the officials of UNFPA and with the president of DIMOL

the first priority for Niamey now is to select, train and establish an obstetric fistula management team consisting of one surgeon, one theater nurse, one pre-/post-operative nurse and one anesthesia nurse; for their training they have to come to Babbar Ruga Fistula Teaching Hospital in Katsina, Nigeria

vvf workshop niamey

inspection tour VVF niamey 25-28 january 2004

to be discussed

1 venue of workshop: preferably government hospital

2 number of participants:
- 5 doctors
- 5 nurses
- 3 external visiors
- 4 from zinder
- 3 from katsina

3 proposed number of patients to be operated:
30 patient of whom at least 25 new patients (not operated before)

4 duration of workshop
monday 16th thru friday 20th of February

5 program

surgery	from 8.00 am to 15.00 pm
review of surgery	from 16.00 to 18.00 pm
Q&A	
lectures	

to be inspected

a operation theater

b wards

c availability of staff

kees waaldijk MD PhD
chief consultant surgeon

24th of january 2004

vvf workshop niamey
centre hospitalier régional poudrière

monday 16th thru friday 20th of february 2004

day-to-day report

saturday february 14th
we left at around 7.30 hr because Kabir could not come out early since somebody had blocked his car. Starting in Katsina and then via Takieta where we picked up Dr Lucien, after a 1-day and 1,100 km journey by road, we arrived safely in Niamey at around 19.30 hr where we were welcomed with warm hospitality by officials from the Ministry of Health and officials from DIMOL

sunday february 15th
this day was used to familiarize ourselves with Niamey, the hospital, the staff and the patients.

monday february 16th
after the opening ceremony from 9.30-11.00 hr we proceeded to the hospital and the operating program started at around 12.00 hr
surgery: six operations all VVF-repair were performed until around 18.30 hr including one minute fistula, early closure of 2 fistulas, one urethrovesi covaginal fistula midline, one mutilated 2x1 cm fistula with probably also ureter fistua, one mutilated intracervical CS-vesicocervicovaginal fistula, and one mutilated minute fistula with larger bladder defect
wardround

tuesday february 17th
surgery: between 8.30 and 18.30 hr a total of six operations were performed out of which several were very difficult: one early closure as **minimal surgery**, one urethralization with dynamic fasciocolposuspension for severe postrepair stress incontinence, one extensive fistula with catheterization of ureters, two severely mutilated fistulas (in one patient 4 fistulas within severely mutilated bladder_vagina), one duplication of bladder neck
wardround

wednesday february 18th
surgery: between 8.30 and 18.30 hr a total of six operations were performed, all of them very difficult: one mutilated UVVF, one circumferential UVVF-repair by end-to-end vesicourethrostomy, one highly complicated very extensive repair with ureter catheterization,, one complicated mutilated fistula, one mutilated fistula repair with urethralization and avw reconstruction
wardround

thursday february 19th
in the morning patients were examined and around 11.00 an appointment with the first lady of République du Niger, after which the Minister for Health was visited
surgery: between 14.00 and 18.30 hr a total of six procedures were performed in 4 patients; 3 VVF-repair, 2 rectum closure with sphincter ani/perineal body reconstruction and 1 FOLEY catheter insertion of 8 wk in a patient with long-standing (more than 2 yr) atonic bladder
wardround

friday february 20th
surgery: we started early in order to have some time left for discussion and 6 procedures were performed: one early closure of an extensive fistula as minimum surgery, one VVF-repair, one bilateral ureter catheterization and circumferential UVVF-repair by end-to-end vesicourethrostomy, one mutilated fistula by ureter catheterization and VVF-repair, one mutilated intracervical CS-vesicocervicovaginal fistula, and as last patient a suprapubic cystostomy to remove a large 8x6x5 cm bladder stone
wardround
the workshop was rounded up at around 17.00 hr by a lecture about the urine continence mechanism in the female and then by questions and answers for about 1 hour afer which the workshop was closed officially
at night we had discussions with the officials from UNFPA to discuss a program for niamey and République du Niger where it was highlighted that the first priority is to select, train and establish an obstetric fistula management team and also to discuss the modalities how to proceed for the rest of République du Niger

saturday february 21st
we left 6.30 hr in the morning for the same long journey back and arrived safely at home in katsina at around 19.15 hr having dropped dr lucien in takieta
abdullahi was so tired he fell asleep on the floor the moment he arrived at home and woke up at 3.00 hr in the night to find out that his wife had put a pillow under his head to make him more comfortable

patient data
out of the 25 patients with a VVF, only 8 patients had not been operated before, 9 patients had been operated 1x and 8 patients had been operated 2x; and out of the 3 patients with RVF, 2 had been operated at least 1x

the age of the patients varied from 15 to 45 yr, and the age at which they developed their fistula from 14 to 35 years demonstrating that there is **no** causative relation between the obstetric fistula and age at giving birth

the duration of leakage varied from 32 days to 30 years; some are lucky and some not. The patient who had been leaking urine for 30 yr (without surgical intervention) which started after her first delivery became pregnant and delivered 14 more times with fistula; out of the 15 times she delivered only 7 children are alive

in 25 patients the fistula was due to prolonged obstructed labor; and in 1 patient the RVF was congenital

the (obstructed) labor lasted from 1 to 7 days with a mean of almost 3 days demonstrating the poor access to functioning obstetric care; **what a suffering!**

the parity at which they delivered their fistula varied from I thru X demonstrating that **the obstetric fistula is only related to poor obstetric care**

one of the 2 patients who developed their fistula when 35 yr old at their **10th** delivery had **no live child** again demonstrating the **poor obstetric care**

out of the 25 babies born, there were 21 stillbirths and 4 live births; out of these 4 live births 2 died the same day, 1 died 4 months later and only 1 is still alive

and then to know that these patients are only the "lucky" ones who survived the enormous trauma of obstructed labor … for the prize of a dead baby and an obstetric fistula

kees waaldijk MD PhD 25th of february 2004
chief consultant fistula surgeon

consultant gynecologists/surgeons/urologists

Dr Faustin Akpki		CHR Poudrière
Dr Tourè Albatouré		Maternité I Gazobi
Dr Aridouane Diarietou		Centre Hospitalier Régional Poudrière
Dr Abdoulaye Idrissa		Hôpital National Niamey
Dr Keita Mahamadou		Médecin du Monde Mali
Dr Zino Jean Mastic		Médecin du Monde Mali
Dr Babadi Nameoua		Hôpital National Niamey
Dr Amadou Seibou		Hôpital National Niamey
Dr Amadou Soumana		Hôpital National Lamordé
Dr Madeleine Ousman		Maternité I Gazobi

nurses/midwives etc

Mr Issoufou Amadou	aide anesthésie	Hôpital National Niamey
Mr Manou Gagara	aide anesthésia	Centre Hospitalier Régional Poudrière
Mr Illiassou Issoufou	aide anesthésie	Centre Hospitalier Régional Poudrière
Mr Boubacar Moumouni	aide anesthésie	Hôpital National Niamey
Mme Hamsatou Noma	aide anesthésie	Centre Hospitalier Régional Poudrière
Mr Illia Seydou	aide anesthésie	Centre Hospitalier Régional Poudrière
Mme Fati Dandakoye	IDE	Centre Hospitalier Régional Poudrière
Mme Maimouna Laminou	IDE	Centre Hospitalier Régional Poudrière
Mme Maimouna Oumarou	IDE	Centre Hospitalier Régional Poudrière
Mr Halidou Soumana	IDE	Centre Hospitalier Régional Poudrière
Mme Moumouni Biba	infirmière	Centre Hospitalier Régional Poudrière
Mr Issoufou M Ibrah	infirmier	Centre Hospitalier Régional Poudrière
Mr Amadou Moussa	infirmier	Centre Hospitalier Régional Poudrière
Mr Yacouba ALI	LGCO	Hôpital National Niamey
Mr Douramane Amadou	LCGO	Hôpital National Niamey
Mr Hassane Atamo	LCGO	Hôpital National Lamordé
Mr Soumana Boubacar	LGCO	Hôpital National Niamey
Mme Rakiatou Kassali	LGCO	Hôpital National Niamey
Mr Roro Kitira	LGCO	Centre Hospitalier Régional Poudrière
Mr Moussa Lamine	LGCO	Hôpital National Niamey
Mme Hindatou Noma	LGCO	Centre Hospital Régional Poudrière
Mr Abdou Nouhou	LGCO	Maternité I Gazobi
Mr Mahamadou Sani	LGCO	Hôpital District Niamey commune III
Mr Boubacar Mamoudou	TSAR	Hôpital National Niamey
Mme Habsatou Noma	TSAR	Centre Hospitalier Régional Poudrière

medical students

Mr Aboubacar M Awami	ONG Dimol
Mr Abdoulaye Traoré	ONG Dimol

coordinator

Mme Hadiza Abdou	ONG Dimol

facilitators

Dr Lucien Djangnikpo		Maternité Centrale Zinder
Mr Dadimi Bagana	infirmier	Maternité Centrale Zinder
Mr Abdullahi Haruna	CNO	Babbar Ruga Hospital Katsina Nigeria
Mr Kabir K Lawal	ACNO	Babbar Ruga Hospital Katsina Nigeria
Dr Kees		Babbar Ruga Hospital Katsina Nigeria

sponsoring-organizing agencies

Ministry of Health

Hôpital Régional Poudrière

Hôpital National

OXFAM

NOVIB

UNFPA

DIMOL

STT-Foundation

SK-Foundation

special thanks:
to the chief medical director of Hôpital Régional Poudrière dr joachim diatta and his staff for their excellent cooperation, to the chief consultant surgeon of Hôpital National Niamey dr amadou seibou and to the president of DIMOL mme salamatou traoré

fourth national vvf workshop for tanzania

ccbrt hospital

dar es salaam

from monday 11th thru friday 17th of december 2004

kees waaldijk MD PhD

chief consultant fistula surgeon

fourth national vvf workshop for tanzania

ccbrt hospital

dar es salaam

executive summary

as part of the obstetric fistula training programme in tanzania the fourth national workshop was organized in ccbrt hospital in dar es salaam, and the chief consultant from the national vvf project nigeria was invited as cofacilitator

the objectives of this obstetric fistula workshop were:

a to demonstrate the complex trauma of the obstetric fistula

b training of new doctors in the principles of obstetric fistula management

c update the skills and knowledge of doctors who had been trained already and who had sufficient personal experience in the repair of the obstetric fistula

d training of nurses in the pre-, intra- and postoperative management

e exchange opinions and operation techniques between tanzania and nigeria

f demonstrate the latest technique “urethralization and fasciocolposuspension” for stress incontinence in theoretical and practical sessions

during the 10 effective working days of the workshop the art and science of obstetric fistula surgery were demonstrated step-by-step by a total of 58 procedures in 50 patients backed up by questions and answers and by 7 lectures

the consultant from nigeria left after 7 working days whilst the consultant from amref continued

there were few patients for the new doctors-trainees since many of the patients had been operated already 2-3 times or even more

all in all it was a successful workshop during which the theoretical knowledge and the practical skills of all the participants were updated

however, since it is difficult to train new doctors in such a short exercise perhaps in future workshops it would be better to concentrate on the advanced training of more experienced fistula surgeons as training is a continuous process

day-to-day report of the workshop

monday 6th december 2004
registration of participants
official opening of workshop
examination and selection of patients

tuesday 7th december 2004

surgery	eight procedures were performed in 7 patients: repair of residual corner-corner fistula L with urethralization and colposuspension (3x operated), internal sphincter rhaphy and posterior sphincter ani repair in congenital rectovaginal fistula (2x operated), proximal large RVF-repair (1x colostomy) with vaginoplasty, rectum closure with sphincter ani_perineal body repair (2x operated), repair of residual corner-corner fistula L (3x operated), bilateral ureter catheterization and "circumferential" UVVF-repair (1x operated for RVF), and disruption of rectum stricture, ps-like RVF-"repair" and ps-like UVVF-"repair" ("inoperable")
wardround	followed by questions and answers about the surgery
lectures	classification of fistulas; urine continence mechanism in the female

wednesday 8th december 2004

wardround	
surgery	nine procedures were performed in 7 patients: urethralization and fasciocolposuspension (2x operated), abdominal L ureter implantation, bilateral ureter catheterization and circumferential UVVF-repair and repair of large RVF with vaginoplasty, UVVF-repair type IIAa by trainee, urethralization and colposuspension (3x operated), circumferential UVVF-repair and RVF-repair, and urethralization and suspension (operated 2x)
wardround	followed by questions and answers about the surgery
lecture	operation techniques of the obstetric fistula

thursday 9th december 2004

wardround	
surgery	nine procedures were performed in 8 patients: repair of large RVF with vaginoplasty, bilateral ureter catheterization and extensive UVVF-repair type IIAa, CS_VCVF repair, early closure of intracervical CS_VCVF, urethra(lization) and suspension (3x operated), UVVF-repair and RVF-repair with "vaginoplasty" (proximal hematocolpos), bilateral ureter catheterization and circumferential UVVF-repair (spontaneous healing of RVF), and CS_VCVF-repair
wardround	followed by questions and answers about the surgery
lecture	immediate management of the obstetric fistula

friday 10th december 2004

wardround	
surgery	seven procedures were performed in 7 patients: UVVF-repair type IIAa by trainee, UVVF-repair type IIAa by trainee, urethra(lization) and colposuspension (4x operated), urethralization and suspension (2x operated), colposuspension only (3x operated), repair of "large" UVV type IIAa, and rectum closure with sphincter ani repair (2x operated)
wardround	followed by questions and answers about the surgery
lecture	intraoperative complications in obstetric fistula surgery

saturday 11th december 2004
wardround by dr tom raassen, dr mery nicol and dr janis perialis

sunday 12th december 2004
wardround by dr meryl nicol and dr janis perialis

monday 13th december 2004
wardround
surgery nine procedures were performed in 9 patients: burst abdomen closure (after ureter implantation last wednesday), assessment of L ureter fistula, wedge excision cervix canal bco amenorrhea_hematometra (2x operated), bilateral ureter catheterization and UVVF-repair type IIAa, urethra(lization) and colposuspension (3x operated), assessment of very deep fixed type I fistula with obesity +++ (operated 3x abdominally and leaking 26 yr), RVF-repair, urethralization and colpocervicosuspension (achondroplasty), and vault fistula repair type I
wardround followed by questions and answers about the surgery
lecture urine incontinence in the female

tuesday 14th december 2004
wardround
surgery six procedures were performed in 6 patients: bilateral ureter catheterization and circumferential UVVF-repair, bladder_vagina pouch in very extensive “inoperable” fistula type IIAb, intracervical CS_VCVF-repair, urethra(lization) (2x operated), UVVF-repair type IIAa by trainee, and bilateral ureter catheterization and UVVF-repair type IIAa
wardround followed by questions and answers about the surgery
lecture postoperative complications in obstetric fistula surgery

wednesday 15th december 2004
wardround
surgery four procedures were performed in 3 patients: VVF-repair type IIAa with RVF-repair by trainee, bilateral ureter catheterization and circumferential repair of type IIBb fistula with anterior vagina wall plasty, residual RVF-repair with vaginoplasty (operated 1x)
wardround followed by questions and answers about the surgery

thursday 16th december 2004
wardround
surgery four procedures were performed in 3 patients: UVVF-repair type IIAa by trainee, residual UVVF-repair type IIAa (4x operated), circumferential UVVF-repair type IIAb, and RVF-repair with vaginoplasty
wardround followed by questions and answers about the surgery

friday 17th december 2004
wardround
surgery two procedures were performed in 2 patients: abdominal ureter implantation (missed during UVVF_RVF-repair last wednesday), and bilateral ureter catheterization and VVF-repair type I by trainee
official closing of workshop
wardround followed by questions and answers about the surgery

a **total of 90 hours** were spent during this workshop on surgery, questions and answers, wardrounds and lectures

patient data
the age of the patients varied from 18 to 55 years, though the majority were between 20 and 30 years old; a 82-year-old lady presented with leaking of more than 60 years but she had a shrunken bladder, and it was concluded that an operation would not help her
the parity at fistula development varied from P0, a woman with a congenital rectovaginal fistula, to PV though the great majority of the patients developed their fistula during the first delivery at 20-30 years of age
the duration of leakage varied from 49 days to 30 years (and over 60 years) which gives an indication of the availability of an obstetric fistula repair service; only one patient came in time to have an early closure performed
twenty out of the 50 patients had been operated from 1 to 4 times out of whom 9 presented with total postrepair urine incontinence
two patients were considered to be “inoperable”, in one patient the bladder and the rectum could not be mobilized due to excessive scarring_fixation and in one patient there was only 4x4 cm = 16 sq cm left of the bladder trigone
the one patient with a fixed fistula high up in the vagina (and severe obesity) will become operable once she has slimmed down enough
only six patients could be operated by the trainee doctors, the rest presented with complicated fistulas

operations
a total of 50 VVF and/or VVF-related procedures and 8 RVF and/or RVF-related procedures were performed in 50 patients
out of these 58 procedures the majority 55 were performed vaginally and only 3 (two ureter implantations and one burst abdomen) abdominally
in 9 patients a complete or partial “urethralization and fasciocolposuspension” could be performed for their postrepair total urine incontinence
in one of the “inoperable” patients only the anterior vagina wall could be “closed” and the posterior vagina wall could be “closed”, whilst in the other “inoperable” patient a vagina_bladder pouch was made since the distal urethra was still 2 cm long
no major intraoperative or postoperative complications were encountered

anesthesia
the majority of the operations were performed under spinal anesthesia in the exaggerated lithotomy position; only 4 times general anesthesia was used

preliminary results
at the end of the workshop only the two “inoperable” patients were leaking which was predictable considering the operation findings_procedures whilst all the others were dry

conclusion
it was a fine workshop, well organized, with state of the art surgery, high-quality lectures, excellent results and highly interested participants

kees waaldijk MD PhD 24th december 2004

trainees

doctors

dr marietta mahendeka	bugando medical center	mwanza
dr john s mahona	muheza hospital	tanga
dr miriam mgonja	muhimbili national hospital	dar es salaam
dr frederick m mlekwa	muhimbili university college	dar es salaam
dr r moronga	ccbrt hospital	dar es salaam
dr mzee m nassoro	dodoma general hospital	dodoma
dr j s nduasinde	subawanga regional hospital	s'wanga
dr n n m ng'walida	bugando medical center	mwanza
dr meryl nicol	ccbrt hospital	dar es salama
dr janis perialis	ccbrt hospital	dar es salaam

nurses

mrs desderia b kihalalwa	ccbrt hospital	dar es salaam
mrs victoria makwea	muhimbili national hospital	dar es salaam
mrs yasinta mkama	bugando medical center	mwanza
mrs monica mtui	ccbrt hospital	dar es salaam
mrs josephine mwangaza	morogoro hospital	morogoro
mrs sara nyagwa	subawanga regional hospital	s'wanga
mrs happyphanear p nyoni	dodoma general hospital	dodoma
mrs joyce rugaimukamu	bugando medical center	mwanza

facilitators

dr meryl nicol	ccbrt hospital		dar es salaam
dr tom raassen	consultant surgeon	amref	nairobi, kenya
dr kees	consultant fistula surgeon	national vvf project nigeria	

sponsoring agencies

amref	nairobi	kenya
dutch government	dar es salaam	tanzania
sk foundation	amsterdam	holland
ttt foundation	tiel	holland

many thanks to:
dr meryl nicol for her dedication_commitment_organization and to the management and all the staff of ccbrt hospital for their support

unfpa fistula fortnight
nigeria

21st february thru 6th march 2005

report

by

kees waaldijk, MD PhD

chief consultant fistula surgeon

unfpa fistula fortnight

nigeria

21st february thru 6th march 2005

kano state

katsina state

kebbi state

sokoto state

as organized and sponsored by

unfpa

federal ministry of health nigeria

federal ministry of women’s affairs nigeria

kano state government

katsina state government

kebbi state government

sokoto state government

sk foundation

ttt foundation

virgin unite

nigerian red cross society

vso

foreword

the obstetric fistula is a major public health problem for which a definite solution has not yet been found

actually it is on the rise since the number of childbirths are increasing without concurrent increase in the quantity and quality of obstetric care

the only cause is prolonged obstructed labor which is not relieved in time due to **poor obstetric care**

the resulting complex trauma of the obstetric fistula has far-reaching medical, social and mental consequences since the leaking of urine and accompanying smell are unacceptable in any society

since prevention is a utopia for at least another century, the lesson learned from history in the industrialized countries, we have to concentrate on the (surgical) management for the time being by increasing the number of fistula surgeons and other health personnel, by increasing the number of repair and training centers and by keeping the expertise available for as long as necessary

however, the prevention of the woman from progressive downgrading medically, socially and mentally is very well feasible by the immediate management by catheter and/or early closure with a success rate of 95%

the incidence is 2-5 per 1,000 deliveries when the mother survives in situations where there is no easy access to good obstetric care

the prevalence in Nigeria is 200,000 to 250,000 obstetric fistula patients in need of surgery

since it is a problem of the developing countries, it has to be solved within the limited resources of the developing world, with support from the industrialized world

slowly major aid organizations dealing with the developing world are realizing something has to be done, and funds become available for tackling the medical, social and mental disaster of the obstetric fistula

executive summary

As part of the global campaign to eradicate the obstetric fistula, **unfpa** organized a fistula fortnight from 21st of february thru 6th of march 2005 within the **national vvf project Nigeria** in the already existing VVF-repair and VVF–training centers in Kano, Katsina, Kebbi and Sokoto State.

Funds, manpower, logistics etc were provided by UNFPA, Federal Government of Nigeria, Kano State Government, Katsina State Government, Kebbi State Government, Sokoto State Government, SK Foundation, TTT Foundation, Virgin Unite, Nigerian Red Cross Society and VSO.

These 4 existing centers and the service were upgraded by renovation of the facilities or even by a new center, by providing the necessary equipment, by providing the necessary consumables and by training 3 indigenous doctors, 10 indigenous nurses and 10 indigenous social workers for each participating state.

Fourteen expert **Nigerian** fistula surgeons volunteered; and they were joined by 2 surgeons from UK and 2 surgeons from US to participate and to learn since there are no obstetric fistulas in the industrialized world.

In a major effort by all parties concerned **550 VVF-repairs, 22 RVF-repair and 19 catheter treatments** were performed in those 4 centers during the fortnight of the campaign making a **grand total of 591 repairs**.

Since it was quality we were looking for the objective for fistula closure (healing) had been set at 85% before the exercise was started.

Despite the fact that over 40% of the patients had been operated already from one up to five times the **success rate at closure was 87.3%** since 516 out of the 591 fistulas had healed: 498 (87.5%) out of the 569 VVFs and 18 (81.8%) out of the 22 RVFs; as determined by vaginal examination at 6-8 weeks postoperatively.

The incontinence rate of the healed fistulas was between 15-20% which is normal at the time of evaluation from 6-8 weeks up to 4 months postoperatively and this may still improve during the coming months.

Before and during the fortnight a **total of 12 doctors, 40 nurses and 40 social workers** were trained in the basic principles of management of the obstetric fistula patients regarding pre-, intra- and postoperative care as well as counselling.

Though the fortnight can be considered a great success, it was only a **burst of intensive activity within a 20-year well functioning obstetric fistula programme** of the 4 participating states where extensive groundwork was done to make it a success; for instance the consultant + team travelled more than 15,000 km by road for screening of the patients, for assistance and for follow-up since each round trip is 1,700 km.

It is clear that without the available existing Nigerian expertise, without the available existing Nigerian manpower and without the available existing facilities this fortnight would not have been possible.

introduction

Since there is a renewed world-wide interest in the obstetric fistula together with a global campaign to eradicate it, the unfpa found it appropriate to organize a fistula repair programme where within two weeks a large number of obstetric fistula patients would be operated; **the first of its kind** as a pilot project. And also to use this exercise to train more doctors and nurses.

This would highlight the obstetric fistula to the world, the extent of the problem, and also that the obstetric fistula is repairable, even under rather primitive conditions compared to the industrialized world.

Since Nigeria has the largest number of obstetric fistula patients, the largest number of expert fistula surgeons and the largest number of repair/training centers in the world where the largest number of repairs are being performed (more than 5,000 repairs a year) together with long-standing expertise in the obstetric fistula since 1950, this country was chosen as the ideal set-up to organize a fortnight fistula programme where a minimum of 500 patients were planned to be operated combined with a training programme for Nigerian doctors and nurses.

However, the main objective was not only the quantity but also the quality and **the objective** was to have **a successful closure rate of at least 85%** irrespective of the number of previous repairs.

Since the expertise is available in Nigeria, a team of fourteen **Nigerian** expert fistula surgeons, with a personal experience from 750 to 15,000 fistula repairs, volunteered to participate; this team was joined by two surgeons from UK and two surgeons from US to participate and to learn from this programme. Unfortunately, two other Nigerian expert fistula surgeons who volunteered were out of the country during the fortnight.

As venue four **existing** fistula repair/training centers belonging to the **national vvf project Nigeria with 23,000 repairs sofar** were selected since these centers are used to handle already large numbers of obstetric fistula patients:

a Laure Fistula Center in Kano State
b Babbar Ruga Fistula Hospital in Katsina State
c VVF Center in Kebbi State
d Maryama Abacha Fistula Hospital in Sokoto State

The main problem is not only the number of operations but also the number of post-operative beds available and the number of nurses for the postoperative care. So our main priority was to ensure proper pre-, intra- and post-operative care.

preparation

The four states really made an enormous effort to improve the facilities in order to have a long-lasting service for the obstetric fistula patients and we are highly impressed by their achievements, their commitment and their dedication.

Kano State Government renovated the operating theater, the postoperative wards in Laure Fistula Center and upgraded the facilities in Kwalli Hostel and the VVF Center on Zoo Road; their standby generators are functioning very well.
Katsina State Government renovated the operating theater, the pre- and post-operative wards and the 3 hostels in Babbar Ruga Fistula Hospital; though the theater has been constructed in such a way that most operations can be performed in daylight a standby generator was available.
Kebbi State Government built a new high-quality special VVF Center, including a theater complex, two postoperative wards, water supply and standby generator; to our delight everything was functioning during the fortnight; the old center was converted into a School of Nursing and Midwifery.
Sokoto State Government renovated the operating theater, the postoperative wards and the hostels in Maryama Abacha Fistula Hospital; their standby generator was functioning.

UNFPA made an effort to supply the centers with the necessary equipment, surgical instruments and consumables; as well as drugs and intravenous fluids.

UNFPA organized a 2-day orientation workshop for the participating Nigerian expert surgeons in Katsina in November 2004.

UNFPA sponsored the necessary pre-exercise training. In order to have a good functioning, especially of the postoperative care, 12 Nigerian doctors, 40 nurses and 40 social workers received a short training course of 4 weeks during the months September thru November 2004 at the Laure Fistula Center in Kano and the Babbar Ruga Fistula Hospital in Katsina: 3 doctors of each participating state, 10 nurses of each participating state and 10 social workers of each participating state. It was agreed that the doctors would receive further individual training after the fortnight.

UNFPA secured cooperation from the Federal Government of Nigeria, Kano State Government, Katsina State Government, Kebbi State Government, Sokoto State Government, Virgin Unite, Nigerian Red Cross Society and VSO.

The SK Foundation in combination with the TTT Foundation, in their long-standing support of the **national vvf project Nigeria**, provided a 4-wheel driven executive TOYOTA prado diesel to the project and surgical instruments, suturing materials and anesthetic drugs for the spinal anesthesia.

In January 2005 a media campaign was started with radio jingles, tv programmes etc whereby any woman leaking urine was urged to come forward to one of the 4 centers for treatment. The response was astonishing since more than **1,000 patients** presented themselves before, during or immediately after the fortnight.

The consultant + team visited all the centers every week during the 4 weeks before the fortnight started to screen all the forthcoming patients and to assist in the preparation of the centers; each visit Katsina to Kano to Sokoto to Birnin Kebbi to Sokoto to Katsina being roughly 1,700 km. During the fortnight the centers were visited once a week to assist and coordinate and up to four weeks after the fortnight all the centers were visited once a week for follow-up. Thereafter Kano was still visited once a week and Sokoto and Birnin Kebbi once every 2 weeks being the usual schedule within the **national vvf project Nigeria**.

official opening ceremony

The official opening was performed in Babbar Ruga Fistula Hospital Katsina by the Deputy Secretary of UNFPA, the honourable Minister for Women's Affairs, the honourable Minister for Health as represented by the Director Hospital Services and Training, the Governor of Katsina State, the Governor of Kano State, the Country Representative of UNFPA, and representatives from Virgin Unite, Nigerian Red Cross Society and VSO

the fortnight

On the Friday before the fortnight started all the expert fistula surgeons travelled to their respective centers in order to familiarize themselves with the facilities and the patients; in each center one of them was in charge.

In each center there were representatives from the Federal Government, State Government, UNFPA and Nigerian Red Cross Society to assist and to observe.

The campaign started on Monday 21st February and lasted thru Sunday 6th March 2005, and surgery was performed on each of the 14 days of the fortnight from morning to evening.

Since **a total of 591 procedures** were performed on the 10 available operating tables this comes to **4-5 repairs per operating table per day.**
Technically, more operations could have been performed but we had to restrict ourselves since we had no more postoperative beds and we had to guarantee proper postoperative care.

All the repairs were performed **vaginally** and under **spinal anesthesia** and in the **exaggerated lithotomy position**.

The procedures varied from very simple, e.g. insertion of FOLEY catheter or repair of small type IIAa fistulas, to highly complicated, e.g. circumferential repair of type IIAb fistulas or urethra reconstruction or repair of very extensive fistulas or combination of VVF/RVF-repair.

To make things difficult was the fact that over 40% of the patients had been operated already before from one up to five times.

More than 98% of the fistulas were due to prolonged obstructed labor, so obstetric fistulas; the rest were due to other causes such as yankan gishiri and surgery.

The parity in the obstetric fistula patients varied from I to XV demonstrating the fact that obstructed labor can occur in anybody, irrespective of age; though the majority were para I.

The age of the patients varied from 12 years (yankan gishiri) to over 70 years (long-standing fistulas).

The duration of leaking varied from 12 days to more than 50 years. Most of these patients leaking long were not aware something could be done until they got the message via the media campaign.

The size of the fistulas varied from pinhole < 0.1 cm up to 8 cm with major tissue loss of bladder, urethra, endopelvic fascia, pubourethral ligaments, pubococcygeus musculature, iliococcygeus musculature, ischiococcygeus musculature, broad ligaments, cardinal ligaments, sacrouterine ligaments, cervix and uterus; some patients even had an **empty pelvis**. Neurologic complications such as drop foot due to peroneal nerve trauma were frequently encountered.

As predicted the problems were not in operating but with the postoperative care. Which African hospital is suited to care for 65-90 postoperative patients a week? By the end almost **600 postoperative patients had to be cared for**, and 600 beds were occupied.

So in Kano, Sokoto and Kebbi more beds had to be recruited, and there were minor hold-ups of surgery since all the beds were full.

There was a constant shifting from intensive care for the freshly operated patients to lower postoperative care after some 3-4 days if the patient was completely alright.

We were highly impressed by the State Representatives of UNFPA who solved all the logistic problems.

The media campaign was very effective though it started too late. One third of the patients came before the fortnight, one third came during the fortnight and many came after the fortnight; in fact the media campaign had to be stopped, especially in Kano where bus loads of patients came through heavy campaigning by the Local Governments who offered free transport to Laure Fistula Center.

training

All the doctors and nurses who had been trained for the exercise participated during the fortnight. Though the trainee doctors assisted the expert fistula surgeons, only very few fistulas were fit for the trainee doctors, and further individual surgical training is needed as most of the doctors were very young without real exposure to surgery.
Since fistula surgery is highly complicated, each of them will attend the vvf training program of the national vvf project Nigeria where their skills will be upgraded under **personal** instruction and supervision by the chief consultant fistula surgeon. After this they will be able to handle simple fistulas on their own.

follow-up and results

The follow-up was conducted by the consultant + team in all the centers, first at catheter removal 2-4 weeks after repair and then again 6-8 weeks up to 4 months postoperatively when the patients were asked systematically about leaking, (in)continence and miction; and then all of them were examined vaginally for healing and (in)-continence; the follow-up of the patients will continue up to 6 months postoperatively.

At the last check-up the **success rate at closure was 87.3%** since 516 out of the 591 had healed: 498 (87.5%) of the 569 VVFs and 18 (81.8%) of the 22 RVFs.

The incontinence rate of the healed fistulas was between 15-20% which is normal at the time of evaluation; this may still improve further.

postoperative mortality

Despite all the care and all our efforts, 4 patients died in the postoperative period: one at 6 days (severe malaria), one at 13 days (hepatitis or hepatic failure due to native drugs), one at 19 days (stroke due to hypertension) and one at 31 days (leukemia as diagnosed in the referral hospital)

counseling

As standard practice there was continuous intensive counseling of the patients; this started already at their first visit to the center when they were instructed about personal hygiene and high oral fluid intake.

Then after the operation and at each follow-up they were instructed again about personal hygiene and high oral fluid intake, to refrain from sexual intercourse for 6 months and to present themselves at 3-mth amenorrhea and to attend antenatal care and to deliver in the hospital at subsequent pregnancies.

conclusion

The fortnight, the first of its kind and scale, was a success in terms of: cooperation between major aid organizations and the Nigerian government at all three levels, mobilization of funds, mobilization of expertise, mobilization of manpower, creation of awareness, advocacy and of course in terms of helping the unfortunate obstetric fistula patients.

For the (surgical) management of the obstetric fistula one has to rely upon the **existing** expertise available in the developing world. Despite reports in the international press “US and UK surgeons train Nigerian doctors” there is **no** expertise in the industrialized world, simply because the obstetric care is such that the obstetric fistula is non-existing. So if you want to learn fistula surgery come to Nigeria for your training.

recommendations

a the infrastructure must be in place and functioning
b pre-exercise training of doctors and nurses well in advance
c media campaign to the patients should start 2-3 months before
d maximum 7 operating days otherwise there is overload of postoperative care
e in total 50-70 patients per center should be prepared for operation
f some 4-5 operations per operating bed per day is feasible

kees waaldijk MD PhD 31st of august 2005

operations and outcome

a total of 591 procedures were performed on the available 10 operating tables being:
4-5 repairs per operating table per day

repairs unfpa obstetric fistula fortnight

center	op-tables	catheter	vvf-repair	rvf-repair	total
kano	3	5	153	11	**169**
katsina	2	7	123	5	**135**
kebbi	2	4	94	4	**102**
sokoto	3	2	180	2	**184**
	10	**19**	**550**	**22**	**591**

the **success rate at closure** was **87.3%** since 516 out of the 591 fistulas had healed: 498 (87.5%) out of the 569 VVFs and 18 (81.8%) out of the 22 RVFs; as determined by vaginal examination at 6-8 weeks up to 4 mth postoperatively

the incontinence rate of the healed fistulas was between 15-20% which is normal at the time of evaluation; this will surely improve during the coming months by strict bladder drill

unfortunately, there was a postoperative mortality in 4 patients at resp. day 6 (severe malaria), day 13 (hepatitis or hepatic failure due to native drugs), day 19 (stroke due to hypertension) and day 31 (leukemia as diagnosed in the referral hospital)

expert fistula surgeons

nigeria

dr idris abubakar	800 repairs
dr kabir abubakar	150 repairs
dr said ahmed	3,000 repairs
dr imam amir	1,100 repairs
dr idris halliru	900 repairs
dr sunday lengmang	1,000 repairs
dr abdulkarim garba mairiga	500 repairs
prof oladosu ojengbede	800 repairs
dr oladapu shittu	2,000 repairs
dr moses sunday-adeoye	250 repairs
dr hassan wara	800 repairs
dr abdulrasheed yusuf	700 repairs
dr iliyasu zubairu	800 repairs
dr kees waaldijk	15,000 repairs

united kingdom

dr paul hilton	expert incontinence surgeon
dr gloria eseghbona	senior registrar obstetrics/gynecology

united states

dr william meyer	expert consultant gynaecologist
dr ambereen sleemi	consultant urogynecologist

kano state

dr habib gabari

dr mustapha miko

dr inuwa

dr aminu isyaku

+ 10 nurses and 10 social workers

katsina state

dr david nsima

dr mohammed lawal

+ 10 nurses and 10 social workers

kebbi state

dr al moustapha	continuing his expertise	25 repairs

dr mohammed sani umar

dr abubakar

+ 10 nurses and 10 social workers

sokoto state

dr abba wali

dr bello lawal

dr ibrahim nakaka

dr aliyu yaroko

dr abdullahi gada	continuing his expertise	60 repairs

+ 10 nurses and 10 social workers

acknowledgment

Since the success of the (surgical) management of the obstetric fistula patients depends on team work between individuals, between individuals and organizations, and between organizations and governments, many thanks to

all the participating federal and state governments, organizations and individuals for their personal dedication, organizational skills and financial support: UNFPA, Federal Government of Nigeria, Kano State Government, Katsina State Government, Kebbi State Government, Sokoto State Government, SK Foundation, TTT Foundation, Virgin Unite, Nigerian Red Cross Society and VSO

but especially to the expert fistula surgeons who volunteered to participate, to Kate Ramsey from UNFPA Headquarters, to the country representative of UNFPA, to Dr Lucy Idoko from UNFPA and to the UNFPA state advisers of Kano, Katsina, Kebbi and Sokoto

and foremost to all the staff of the existing four VVF-repair and VVF-training centers in Kano, Katsina, Kebbi and Sokoto for their many years of hard work

to have made this fistula fortnight a big success

vvf workshop niamey

hôpital national niamey

30th of june thru 4th of july 2008

report

by

kees waaldijk MD PhD

chief consultant fistula surgeon

vvf workshop niamey
hôpital national niamey

executive summary

this was the **4th** visit to niamey in our long-standing cooperation with république du niger as to surgery and training

essentially, we found the same situation as 3 years ago during our last visit:

a **fistularium** where many “incurable” patients live who have been operated many times by different surgeons from different backgrounds with poor results

a total of 68 patients had been selected most of whom had been operated several times and we changed our strategy

a **total of 24 operations** were performed in **23 patients**; out of these patients only 6 had never been operated whilst the other 17 patients had been operated from 1 to 10 times

however, does it make sense to operate for the **xth** time on “incurable” patients?; therefore in 6 patients we indicated the operation as **last resort final**

it is high time that all the incurable patients leave this hospital annex fistularium, attend some form of rehabilitation and then look after themselves how terrible their situation may be

in our final discussions about a closer and more formal cooperation we decided upon a memorandum of understanding

vvf workshop niamey
hôpital national niamey

preassessment center niamey
fact finding trip

we plan for 5 days of operation with a total of 25-30 patients in a 7-day trip
arriving on sunday and leaving on saturday

we plan to do 20-25 normal patients and 5 terrible “inoperable” patients who have been operated many times:
so 4-5 normal patients and 1 “inoperable” patient per day

quality of operating theatre

quality of operating table

number of (pre/post)operative beds

number of patients

how many times operated

are the patients operable

how many operations can be performed a day:
staff
operating towels
gauze
emergency drugs
instruments

how many other doctors as observers

how is the night covered

the doctor who is doing the follow-up should be included in the team

assistance for crossing the border without any problem

lodging in SAHEL hotel

though we shall concentrate on the surgical aspects we do not mind contributing to publicity

vvf workshop niamey
hôpital national niamey

30th of june thru 4th of july 2008

day-to-day report

sunday 29th of june
in the morning at around 7.30 hr the team from katsina left the hospital in the toyota prado jeep with abdullahi driving and the rest making themselves comfortable
on arriving at the border there was wahalla at the Niger side since there was problem with the official travelling papers; however it was solved after a couple of telephone calls to and from niamey; it only took some 2 hours
in maradi we picked up our friend from zinder, dr lucien djangnikpo, and we had an egg sandwich after which we set out for the rest of the journey, abdullahi still driving until we met dr kees' road with potholes and diversions and he took over
we made a short stop at birnin koni to drink something since we wanted to reach as far as possible during daytime and it paid off as we arrived in niamey still in good time at 20.30 hr where we were met in sahel hotel by dr abdullahi Idrissa; though the hotel had been renovated since we were there last in 2006 we felt at home
having been in the car for 13 hours we were really tired but happy that we arrived in good health and thanked Allah for it

monday 30th of June
on leaving the hotel we were met by the hospital director who welcomed us after which we proceeded to the Hôpital National Niamey, the venue of the activities, where we were welcomed by the chief surgeon dr seibou and by dr abdullahi idrissa, our contact person in niamey
we discussed how to proceed and settled on starting in the morning at 8.30 until 18.00; contrary to our previous visits we decided that the anesthesia was the sole responsibility of the anesthesia department of the hospital
a total of 68 patients were waiting for us to operate; they had been operated from zero up to 10 times by various surgeons from various teams
since the patients had already been eating, we could operate only upon 2 patients
surgery: **two operations**: 1 patient with complicated circumferential fistula never operated and 1 patient operated 3x including sling: and assessment of extensive vulva lesions; examined 24 patients; from **8.30 to 18.00 hr**
wardround

tuesday 1st of july
surgery: **six operations**: 1 patient operated 4x including sling (planned for diversion), 2 patients operated 2x, two patients early closure and 1 patient never operated; examined 17 patients; from **8.30 to 18.00 hr**
wardround
at night we were invited by dr abdullahi idrissa to his house and we had a fantastic dinner on the roof terrace with a beautiful view on the sahel habitat

wednesday 2nd of july
surgery: **seven** operations: 1 patient early closure, 1 patient early closure vvf/rvf, 1 patient operated 4x (for diversion), 1 patient operated 1x, 1 patient never operated and 1 patient with long-standing atonic bladder by catheter; examined 17 patients; from **8.30 to 18.00 hr**
wardround

thursday 3rd of july
surgery: **six** operations: 2 patients operated 2x including sling, 2 patients operated 4x and 2 patient operated 5x (for diversion); from **8.30 to 17.00 hr** after which meeting with hospital director
wardround

friday 4th of july
surgery **three** operations: 1 patient operated 8x, 1 patient operated 5x and 1 patient operated 10x; from **8.30 to 13.00 hr**
wardround
in the evening we had a fine working dinner with the facilitators from niamey and the unfpa country representative in Niger for concluding discussions; we decided upon a memorandum of understanding so that we would continue our missions once or twice a year and we would work closely together with regards to training

saturday 5th of july
whole day travelling back to katsina the same long road; this time there was wahalla at the Nigeria side of the border but as usual it was solved and we arrived safely in katsina mun gode Allah

operations: **24** operations in **23** patients; 6 repairs as **last resort final**

examined: 58 patients

kees waaldijk MD PhD 10th of July 2008
chief consultant fistula surgeon

many thanks to
dr abdoulaye idrissa and all the staff of hôpital national niamey for their cooperation

first vvf workshop for yobe state

federal medical center

nguru

17th thru 22nd of november 2008

report

by

kees waaldijk MD PhD

chief consultant fistula surgeon

first vvf workshop for yobe state

federal medical center nguru

executive summary

in march 2008 we were approached by dr mohammed kawuwa who had been trained already in the surgical management of the obstetric fistula if we could help them out with the fistula patients and to collaborate in order to set up a regular vvf service

the first priority was to train their perioperative nurse and pre/postoperative matron in the (surgical) management of the obstetric fistula for 1 month since we needed people in nguru to collect patients and to organize things on ground for a workshop; as well we had to make sure we could rely on proper pre-, intra- and postoperative care

the workshop itself was fine where a total of 24 state-of-the-art operations were performed in 22 patients whilst 1 patient was classified as inoperable

the operations performed were 19 vvf-repairs, 1 cystostomy and stone removal, 1 incontinence operation, 2 rvf-repairs and 1 sphincter ani reconstruction

the **evidence-based results** at 5 weeks postoperatively were:
out of the 19 patients with vvf (including last resort final and “inoperable”), the fistula had healed in all 19 with full continence in 13, mild incontinence I in 1 and moderate incontinence II in 5 patients bladder drill was ordered if incontinent
in the patient with post IIBb incontinence, it had improved but there was still moderate incontinence II bladder drill was ordered
the patient with cytostomy/bladder stone will be prepared for next workshop
out of the 3 patients with rvf, the fistula had healed in all 3 with full continence
some of the patients with incontinence will definitely improve on bladder drill

this workshop was the **first** in a series of more in order to establish a functioning vvf-repair service for yobe state; all in line with the national vvf masterplan that each state should have its own vvf-repair center to bring the service towards the patients

first vvf workshop for yobe state

federal medical center nguru

monday 17th thru saturday 22nd of november 2008

introduction
in march 2008 we were approached by dr mohammed kawuwa who had been trained already in the surgical management of the obstetric fistula if we could help them out with the fistula patients and to collaborate in order to set up a regular vvf service

therefore alhaji hassan z tagali, perioperative nurse, and mrs yemisi e ojo came to babbar ruga fistula training hospital in july for their training since we needed people in nguru to collect patients and to organize things on ground for a workshop; as well we had to make sure we could rely on proper pre-, intra- and postoperative care

this is all in line with the national vvf masterplan that each state should have its own vvf-repair center

day-to-day report of the workshop

monday 17th november 2008
travelling from Katsina via Kano to Nguru, some 500 km, where we were nicely welcomed by Dr Kullima representing the Chief Medical Director who was in Abuja on an official visit; we were given a fine tour of the hospital where we were introduced to the staff and the patients who were instructed preoperatively; we had a good meal and were lodged in their excellent guest house

tuesday 18th november 2008

inspection	of the theatre facilities and equipment; the operating table was ok so that we could prepare for proper examination of the patients and subsequent high-quality surgery
surgery	five procedures were performed in 4 patients: early repair of IIAa fistula with pcf repair/fixation, circumferential repair of IIAb fistula with bilateral pcf refixation, repair of IIAa fistula with pcf repair/fixation and circumferential repair of IIAb fistula with anorectum closure and sphincter ani reconstruction (operated 2x)
wardround	followed by questions and answers about the surgery

wednesday 19th november 2008

surgery	five procedures were performed in 5 patients: complicated repair of IIAa fistula (treated by caustics), early circumferential repair of IIAb fistula with pcf fixation, circumferential repair of IIAb fistula with pcf fixation, repair of IIAa fistula, and repair of IIAa fistula
wardround	followed by questions and answers about the surgery

thursday 20th november 2008

surgery	six procedures were performed in 5 patients: last resort final procedure in “inoperable” IIBb fistula, repair and pcf fixation in mutilated extensive IIAb fistula (operated 2x), assessment of inoperable IIBb fistula (opera ted 2x), circumferential repair with pcf fixation of extensive IIAb fistula with rvf repair of Ia fistula and catheter for healing sacral plexus trauma
wardround	followed by questions and answers about the surgery

friday 21st november 2008

surgery seven procedures were performed in 7 patients: repair of scarred IIAa fistula (operated 1x), circumferential repair with pcf fixation in mutilated IIAb fistula (operated 2x), urethralization of post IIBb intrinsic incontinence (operated 1x), repair of scarred IIAa fistula (operated 2x), repair with pcf fixation in IIAa fistula (operated 2x), repair with pcf fixation of mutilated IIAa fistula (operated 2x), repair of mutilated large IIAa fistula (operated 1x) and repair of scarred extensive minute IIAa fistula (operated 1x)

wardround followed by questions and answers about the surgery

saturday 22nd november 2008

surgery two operations were performed in 2 patients: last resort final repair of mutilated IIBb fistula (2x operated) and suprapubic cystostomy and removal of impacted bladder stone (operated 2x) as first stage

wardround followed by a fine meal

and then travelling back via kano the same 500 km; except for the first 50 km where the condition was really very poor, the road was ok and we arrived safely in katsina at around 18.00 hr

a **total of 40 hours** were spent during this workshop on surgery, questions and answers and wardrounds and another **14 hours** on traveling

conclusion

it was a fine workshop as the first step to have a functioning vvf center in yobe state where a total of 24 state-of-the-art operations were performed in 22 patients whilst 1 patient was classified as inoperable

as agreed alhaji abdullahi haruna and alhaji kabir k lawal returned on 23.12 and 24. 12.08 to assist with the postoperative follow-up for evidence-based results

evidence-based results at 5 weeks postoperatively

out of the 19 patients with vvf (including last resort final and “inoperable”), the fistula had healed in all 19 with full continence in 13, mild incontinence I in 1 and moderate incontinence II in 5 patients bladder drill was ordered if incontinent

in the patient with post IIBb incontinence, it had improved but there was still moderate incontinence II bladder drill was ordered

the patient with cytostomy/bladder stone will be prepared for next workshop

out of the 3 patients with rvf, the fistula had healed in all 3 with full continence in all

some of the patients with incontinence will definitely improve on bladder drill

kees waaldijk MD PhD
chief consultant fistula surgeon

25th of november 2008

adapted for results 20th of january 2009

list of participants

doctors

dr mohammed b kawuwa	consultant gynecologist chief medical director	fed med center	nguru
dr a a kullima	consultant gynecologist	fed med center	nguru
dr u e eni	consultant surgeon	umth	maiduguri
dr waziri ana	sen registrar surgeon	umth	maiduguri
dr maiduga bwala	medical officer	fed med center	nguru
dr ukhasha ibrahim	medical officer	fed med center	nguru
dr ibrahim s halifa	medical officer	fed med center	nguru
dr h abubakar	medical officer	fed med center	nguru
dr yunusa abdulrahman	medical officer	fed med center	nguru
dr musa sarki	medical officer	general hospital	buni yadi

nurses

alhaji hassan z tagali	perioperative nurse	fed med center	nguru
alhjai ibrahim yakubu	perioperative nurse	fed med center	nguru
alhaji shuaibu hussaini	perioperative nurse	fed med center	nguru
alhaji ahmed s tsafi	perioperative nurse	fed med center	nguru
hajiya talatu aliyu	perioperative nurse	fed med center	nguru
alhaji ahmed m lawan	nursing officer	fed med center	nguru
alhaji shehu bukar jatau	nursing officer	fed med center	nguru
alhaji alfa ndakotsu	nurse anesthetist	fed med center	nguru
alhaji musa bulus agawa	nurse anesthetist	fed med center	nguru
alhaji abdullahi hanunua	nurse anesthetist	fed med center	nguru
mrs yemisi e ojo	postoperative matron	fed med center	nguru

hospital assistants

mr danladi jarlath	assistant	fed med center	nguru
mr idi umar	assistant	fed med center	nguru
mr ahmadu usman isah	assistant	fed med center	nguru
mr kabiru audu	assistant	fed med center	nguru
mr gambo gabarwa	assistant	fed med center	nguru

facilitators

dr mohammed b kawuwa	chief medical director	fed med center	nguru
dr a a kullima	consultant gynecologist	fed med center	nguru
alhaji abdullahi haruna	cno	babbar ruga hosp	katsina
alhaji kabi k lawal	cno	babbar ruga hosp	katsina
alhaji hassan z tagali	perioperative nurse	fed med center	nguru
mrs yemisi e ojo	postoperative matron	fed med center	nguru
dr kees	chief consultant surgeon	national vvf project nigeria	

many thanks to:
dr mohammed b kawuwa, dr a a kullima, alhaji hassan z tagali and mrs yemisi e ojo for their dedication/commitment/organization and to the management and all the staff of federal medical center nguru for their support

Babbar Ruga Fistula Hospital

KATSINA

Katsina State

report on VVF/RVF repairs

1984-2008

VVF-repairs:	10,845
RVF-repairs:	1,172
total	**12,017 repairs**

there are three main services within the hospital as obstetric fistula center, referral center for leprosy and referral center for tuberculosis

there is a very fine hostel annex rehabilitation center just opposite the hospital and managed by the Ministry of Women Affairs and Social Welfare with good cooperation

a new operation theatre was constructed with total renovation of the burnt-out office of the chief comnsultant surgeon and of the pre- and postoperative wards by Service to Humanity Foundation

both the Ministry of Health and the Ministry of Women Affairs and Social Welfare are highly committed, as are the Governor and his wife

since started from scrap in January 1984 it has become an important comprehensive obstetric fistula repair, (inter)national training, research and rehabilitation center with good infrastructure and was instrumental in giving thousands of destitute patients a second chance in life

also some fistula surgery is being performed in Funtua General Hospital, Katsina Maternity Hospital, Daura General Hospital, Kankiya General Hospital and Malumfashi Hospital; all the doctors have been trained within the National VVF Project

Family Care continued their support by providing the means and the materials to alphabetize and rehabilitate the patients

more staff, doctors and nurses, have to be trained

surgeons: Dr Yusha'u Armiya'u, Dr Shehu Bala, Dr Halliru Idris, Dr Jabir Mohammed, Dr Aminu Safana, Dr Isah Shafi'i, Dr Abdulrasheed Yusuf, Dr Moses I Sunday-Adeoye, Dr Sa'ad Idris, Dr Aliyu M El-Ladan, Dr Awal Sani, chief consultant and others

Laure Fistula Center Murtala Muhammad Hospital

KANO

Kano State

report on VVF/RVF repairs

1990-2008

VVF-repairs:	7,032
RVF-repairs:	839
total	**7,871 repairs**

the obstetric fistula service within Kano State should be a model for the other states since the rehabilitation center annex hostel is outside but near the hospital and managed by the Ministry of Social Welfare; so there is no conflict of interest; the cooperation is fine

both the Ministry of Health and the Ministry of Women Affairs and Social Welfare are highly committed

there is still a backlog in Kano State despite all the efforts made; although obstetric services are free of charge in the state the system is not functioning, not even in the capital since the majority of our new patients come from within Kano municipality

there was a setback as all the theater nurses were transferred to other units within Murtala Muhammad Specialist Hospital; luckily, the nurses replacing them had been trained and had some experience

some VVF-repairs are performed in Danbatta (forward project: about 50-60 repairs), Aminu Kano Teaching Hospital, Nassarawa Specialist Hospital, Sheikh Jiddah Hospital and other hospitals; all the doctors have been trained within the National VVF Project

Rotary International is highly interested but only slight progress was made within the VVF unit in Wudil General Hospital

more staff, doctors and nurses, have to be trained

surgeons: Dr Imam Amir, Dr Said Ahmed, Dr Zubairu Iliyasu, Dr Kabiru Abubakar, Dr Idris Abubakar Dr Hauwa Abdullahi, Dr Muktar Hamza, Dr Habib Gabari, Dr Hadiza Galadima, Dr Halliru Idris. Dr Abdulrasheed Yusuf, Dr Umaru Dikko, chief consultant and others

Maryama Abacha Women and Children Hospital

SOKOTO

Sokoto State

report on VVF/RVF repairs

1994-2008

VVF-repairs:	2,441
RVF-repairs:	173
total	**2,614 repairs**

it is a very important center with good facilities and a high-quality service where many patients present for surgery; it needs further development with regards to manpower in order to perform the 300-400 repairs a year needed

the hospital is under authority of the Ministry of Women Affairs whilst the staff comes under the Ministry of Health; both ministries are committed to improve things

though we have been lobbying hard for many years there is still no permanent doctor on ground for the obstetric fistula care

many doctors were trained but somehow nobody stayed on; an effort has to be made to select and train a young doctor to perform the simple repairs

once the problem of the fistula doctor has been solved, then we can move forward to develop this center further not only into a major repair center but also into a training center

more staff, many doctors and many nurses, have to be trained

surgeons: Dr Abdullahi Gada, Dr Zubairu Iliyasu, Dr Bello Tsafe, Dr Abdulrasheed Yusuf, Dr Halliru Idris, Dr Abdulkarim Garba Mairiga, Dr Idris Abubakar, Dr Paul Hilton, Dr Abba Wali, Dr Bello Lawal, Dr Imam Amir, Dr Kabir Abubakar and chief consultant and others

Fistula Units

B_KUDU, HADEJIA and JAHUN

Jigawa State

report on VVF/RVF repairs

1996-2008

this is mostly the work of Dr Said AHMED who is involved in the VVF/RVF-repair since 1991

VVF-repairs:	2,089
RVF-repairs:	121
total	**2,210 repairs**

the fistula surgery is concentrated now in Jahun General Hospital which definitely is in need of upgrading

this upgrading is done by Médicine sans Frontières France whilst their doctors are being trained by the chief consultant; though they are highly committed the turnover of their staff is high

since Dr Said Ahmed left the service as the most experienced Nigerian fistula surgeon (4,500 repairs!), other doctors took over from him; however, they are highly inexperienced and the place is not attractive for them and the turnover of doctors is high

in collaboration with MSF France during the weekends Dr Kabir Abubakar from Kano State and Dr Said Ahmed performed operations on a regular base; with good results

surgeons: Dr Said Ahmed, Dr Kabir Abubakar, Dr Isah Adamu, Dr Imam Amir, Dr Salisu Babura, Dr Sunday Lengmang, Dr Sunday-Adeoye, chief consul tant and others

Special Fistula Center

B_KEBBI

Kebbi State

report on VVF/RVF repairs

1996-2008

VVF-repairs:	1,279
RVF-repairs:	44
total	**1,323 repairs**

there is a large backlog in Kebbi State especially of patients with highly complicated fistulas

slowly, the center is coming off ground, and the medical director Dr Lawal al Moustapha is doing a fine job

the hospital is under the Ministry of Women Affairs whilst the staff comes under the Ministry of Health; both ministries are highly committed

the facilities are alright but there is need for a high-quality operating table and good operation lights; otherwise the very difficult repairs cannot be performed

in principle, this new hospital has all the potential to become a major repair center

however, there is need of proper discipline and planning

also needed is a rehabilitation unit annex hostel to provide a comprehensive obstetric fistula service for the state

the team from Babbar Ruga Hospital makes a major effort (700 km from Katsina) to come regularly for surgery of the complicated fistulas

definitely, more staff, doctors and nurses, have to be (re)trained

fistula surgeons: Dr Hassan Wara, Dr Lawal al Moustapha, Dr Oladapu Shittu, Prof Oladosu Ojengbede, Dr Sa'ad Idris, Dr Dantani Danladi and chief consultant and others

Faridat Yakubu VVF Hospital

GUSAU

Zamfara State

report on VVF/RVF repairs

1998-2008

this foremost the work and commitment of Dr Sa'ad Idris

VVF-repairs:	995
RVF-repairs:	36
total	**1,031 repairs**

the existing general hospital has become a federal center and then this hospital has become a general hospital, and the VVF work slowed down

however, despite all the problems Dr Sa'ad Idris showed his high commitment, and continued throughout the years to perform VVF-surgery on a regular base

ACQUIRE seems to be highly interested in supporting the service in the state

the chielf consultant and his team could not come due to organizational problems as this is the only general hospital in Gusau

now the many obstetric fistula patients have to come either to Katsina or to Sokoto for their surgery; unfortunately, the majority stay somewhere unattended

once the construction of the new general hospital has been completed this hospital will be reconverted back to its original destination

surgeons: Dr Halliru Idris, Dr Abdulrasheed Yusuf, Dr Sa'ad Idris, Dr Imam Amir, Dr Hassan Wara, Dr Kabir Abubakar and chief consultant and others

Kofan Gayan Hospital

ZARIA

Kaduna State

report on VVF/RVF repairs

1998-2008

VVF-repairs:	759
RVF-repairs:	58
total	**817 repairs**

after the complete structural reconstruction of the hospital and the construction of a fine rehabilitation unit annex hostel, Kofan Gayan Hospital has become a comprehensive fistula repair and rehabilitation center

it is the only hospital where systematically a caesarean section is performed in subsequent deliveries following a successful repair

Rotary International supports the obstetric fistula service by donating equipment and by sponsoring the training of doctors and nurses and by mobilizing community staff for the preventive aspects; from all the centers now it has the best operating facilities;

Dr Ado Zakari and Dr Husaina Adamu participate actively in the obstetric fistula service

in principle the team from Babbar Ruga Hospital comes once every 2-4 weeks to perform the “difficult” surgery and for on the job training; only the very difficult surgery is referred to Katsina; distance from Katsina 250 km and via Kano 400 km

also some VVF-repairs are performed in Kaduna Nursing Home by consultants trained within the National VVF Project: figures are not available

Family Care continues to provide all kinds of materials to alphabetize and rehabilitate the patients

surgeons: Dr Ado ZAKARI,Dr Halliru IDRIS, Dr Abdulrasheed YUSUF, Dr Joel ADZE, Dr Julius GAJERE, Dr Husaina ADAMU and chief consultant and others

Special Fistula Unit

Ebonyi State University Teaching Hospital

ABAKALIKI

report on VVF/RVF repairs

2002-2008

VVF-repairs:	180
RVF-repairs:	13
total	**193 repairs**

this unit was set up during 2002-03 by Dr Moses I Sunday-Adeoye from the Department of Obstetrics and Gynecology who still is i/c

a new high-quality special Fistula Unit was constructed this year within the compound of the Ebonyi State University Teaching Hospital as an independent obstetric fistula repair service

from now on this should be the start first of a permanent vvf-repair center and later on as a vvf-training center for the southeastern part of Nigeria

we wish Dr Moses I Sunday-Adeoye lots of success in his continuing efforts to do something for the obstetric fistula patients in this part of the country

surgeon: Dr Moses I Sunday-Adoye; once in a while chief consultant

Federal Medical Center

NGURU

Yobe State

report on VVF/RVF repairs

2008

VVF-repairs:	37
RVF-repairs:	8
total	**35 repairs**

on special request from Dr Mohammed B Kawuwa we were approached in assisting with the obstetric fistula patients in Yobe State on an (ir)regular base

having trained one doctor and two nurses from yobe state we conducted a workshop in November 2008

we hope this will result in the start of a permanent vvf-repair center; especially since the people involved are highly interested

surgeons: Dr Mohammed B Kawuwa, Dr A A Kullima, once in a while chief consultant

Hôpital National /Centre Hospitalier/Maternité Centrale Départemental

NIAMEY/MARADI/ZINDER

République du Niger

report on VVF/RVF repairs

1996-2008

VVF-repairs:	1,141
RVF-repairs:	70
total	**1,211 repairs**

the obstetric fistula service in Zinder is functioning well under the direction of Dr Lucien Djangnikpo; with fine results

the team from Babbar Ruga Hospital makes an effort (275 km from Katsina) to come once every 2-3 months

a small workshop was executed in Maradi to renew the service since many patients are coming to Katsina for their surgery

since his transfer from Agadez Dr Abdoullahi Idrissa continues his work in the VVF-repair center in Niamey with the help of John Hopkins University; and with good results

a workshop was executed in Hôpital National Niamey as funded by UNFPA during which we agreed upon a memorandum of understanding for closer cooperation especially with regards to training

since Dr Moustapha Diallo has been trained next year a workshop has been planned in Tahoua

major progress has been made in establishing a national programme

surgeons: Dr Lucien Djangnikpo, Dr Akpaki Faustin, Dr Halliru Idris, Dr Tijjani Mamman Hina, Dr Abdoullahi Idrissa, Dr Moustapha Diallo, Dr Madeleine Garba and chief consultant

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