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ABSTRACT

Background: Information was collected on 1500 obstetric fistula patients attending Bugando Medical Centre (BMC) in Mwanza, Tanzania.

Objectives: To identify high risk populations of fistula patients treated from 1998-2006.

Design: A prospective description study of 1294 patients treated for urine and faecal incontinence at BMC.

Setting: Obstetrics and Gynaecological ward at Bugando Medical Centre.

Interventions: A total of 1294 patients underwent surgical treatment of incontinence.

Main outcome measures: Of the 1294 surgical repairs, 84% of the patients were cured, 12% had stress incontinence and 4% failed.

Conclusions: The study shows that low education and poverty were the key factors in the development of fistula. Most obstetric fistulae can be cured, particularly during the first attempt by those properly trained in the skills. Prevention of genital fistula requires raising the education and social status of women including poverty reduction strategies, improving the quality of antenatal care. Increased access to Caesarean section is also needed for prevention of genitourinary fistulas.

INTRODUCTION

The genitourinary fistula is a common gynaecological condition, estimated to occur in at least 50,000-100,000 new patients a year world wide (1). Most of the patients are in developing countries, where it is estimated to occur in at least 3 to 4 per 1000 deliveries in parts of Africa (2).

Over 90% of all genital fistulae in Africa are caused by obstructed labour (3). Bugando Medical Centre is a tertiary referral centre covering the western third of Tanzania with a catchment of over 12 million people. In 1998, the Bugando Medical Centre (BMC) vesico-vaginal fistula (VVF) Project developed a comprehensive programme to address the issue of obstetric fistula.

Data collection began towards the end of year 1998 using a standard form. This paper provides a report on certain aspects of patients treated for genital fistula at BMC and whose data we were able to record.

MATERIALS AND METHODS

Records of patients with urinary and or faecal incontinence who were treated at BMC were

prospectively analysed from 1998 to December 2006. In all these patients, preoperative evaluation had consisted of general examination plus assessment of fistula by Sims speculum and digital examination in the ward. Haemoglobin and blood typing were done.

Antibiotics are given on the first day and intraoperatively. Almost all vaginal repairs were done under spinal block anaesthesia. The vaginal approach in exaggerated lithotomy was favoured as the operative technique for most fistulae. For uretero-vaginal or uretero-cervical fistulae the abdominal approach was chosen. The Martius fat grafts were rarely used even for the large fistulae contrary to routine use by others (4). Labial flaps were used to cover large defects.

When bladder stones were present, they were removed vaginally, sometimes by enlarging the fistula and the repair postponed for at least two weeks, during which bladder washout with Savlon via Foley's catheter was done for at least 48 hours. In addition, broadspectrum antibiotics were given for five days. Recently, immediate repair following stone removal is being carried out.

Repair for stress involved dissecting out the pubocervical fascia, then applying buttressing sutures

to the paravaginal fascia and pubocervical fascia to elevate the urethro-vesical junction. A Foley's catheter was placed for 14 days.

For the VVF repairs, patients were catheterized for 14 days and were discharged a few days following removal of Foleys when considered to be continent of urine preferably by negative dye tests. Postoperative follow-up was not possible for the majority as they came from far distances.

RESULTS

A total of 1500 patients with urine incontinence plus those with rectovaginal fistulae were included in this 2003 analysis between the year 1998 and 2006. Table 1 illustrates patients treated by year. All in all at least 1378 treated patients had most of their information collected until the end of 2006, and this is available for analysis.

TABLE 1

Treated patients with urine incontinence at Bugando Medical Centre, by year (1998 – 2006)

Year of treatment	No. of patients	(%)
1998	32	1
1999	97	6
2000	172	12
2001	186	13
2002	212	14
2003	227	16
2004	197	13
2005	168	11
2006	209	14
Average	167	10
Total	1500	100

Socio economic and demographic characteristics of the fistula patients: Information on place of origin was available in 1373 patients and the results are shown in Table 2. In addition, women from surrounding countries (Kenya, Rwanda, Burundi, DRC), including refugee also came for treatment. Table 3 shows age at onset of fistula. The mean age at onset of urine incontinence was 24 years with a range of one year to 77 years. Sixty five per cent of the cases had marginal primary education and 33% had never gone to school (Table 4). Only 7% of women in this study were circumcised (Table 5).

Table 2

Districts where fistula patients originated in Tanzania

District	No. of patients	(%)
Kahama	137	10
Geita	123	9
Tarime	97	7
Kigoma	84	6
Ukerewe	77	5
Shinyanga	58	4
Bariadi	58	4
Sengerema	48	3
Musoma	46	3
Bukoba	38	3
Urambo	36	2
Biharamulo	33	2
Serengeti	30	2
Bunda	30	2
Others	536	38
Total	1373	100

Table 3

Age at which fistula started

Age (years)	No.	(%)
Up to 15	57	4.6
16 - 20	512	41
21 - 25	243	19.5
26 - 30	223	17.8
31 - 35	102	8.2
36 - 40	74	5.9
41 and above	37	3
Total	1248	100

Table 4

Level of education of patients

Education	No.	(%)
Primary 1 - 4	169	12.4
Primary 5 - 7	710	52.1
Form 1 - 4 (Secondary)	30	2.2
Nil	454	33.3
Total	1363	100

Table 5
Circumcision

Type of circumcision	No.	(%)
None	1206	93.1
Clitoris removed	85	6.6
Minor labia removed	4	0.3
Major labia removed	1	>0.1
Total	1296	100

Obstetrical information: The mean number of pregnancies among fistula patients was 3.3. 38.6% of patients got the fistula in their first pregnancy. The majority got the fistula during subsequent pregnancies (Table 6). 95.5% had attended antenatal clinic (Table 7).

Table 6
Number of times patients have been pregnant

Gravidity	No. of cases	(%)
1	523	38.6
2	185	13.7
3	144	10.6
4	112	8.3
5+	390	28.8
Total	1354	100

Table 7
Antenatal clinic attendance

Status	No. of Cases	(%)
Attended	1274	95.5
Not attended	60	4.5
Total	1334	100

Labour history: Information of duration of labour was available in 1283 patients, (Table 8). Over half had labours lasting two days or more. Most patients were delivered by Caesarean section (51.6%), followed by vaginal delivery (29.9%) and vacuum extraction (11.3%). The places where Caesarean sections were done are shown in Table 9. Most babies were born dead 1082 (77.9%) where this information was available. Surprisingly, 249 (22.1%) babies were reported born alive.

Table 8
Duration of labour

Duration in days	Frequency	(%)
1	316	24.6
2	557	43.4
3	305	23.8
4	63	4.9
5+	42	3.3
Total	1283	100

Table 9
Place where the Caesarean section was done

Place where the Caesarean section was done	Frequency	(%)
The district hospital	509	77
The regional hospital	82	12.4
The referral hospital	43	6.5
Other hospitals	27	4.1
Total	661	100

Social support received following fistula: Almost all patients had assistance in travelling to Bugando Medical Centre for the treatment (85.2%). Most times, the sources of financial support were the husband (41%), parents (23%) or other relatives (23%).

The source of information regarding the availability of fistula treatment at Bugando Medical Centre was from friends mostly (27%) and the family (24%). The radio, health workers and newspaper contributed negligibly.

Management:

Type of genital fistulae and treatment outcome: Among the operated patients, the type of genital fistula and magnitude is as illustrated in Table 10, which also shows the results of treatment. A total of 1294 patients underwent VVF repairs. Eighty four percent of them were cured and another 12% had stress incontinent and 4% failed. Most of the failures were residual fistulae, quite a number of them having had many previous attempts. One patient presented with a record of eight previous attempts. Stress incontinence tended to be associated with very large VVFs and those involving the urethra and the bladder neck, anatomic structures concerned with the closing mechanism of the bladder.

Table 10
Treatment outcome

Type of lesion	No. of patients operated	No. cured	(%)	No. failed	(%)	Stress incontinence	(%)
VVF	1294	1090	84	47	4	157	12
RVF	26	25	96	1	4	-	-
Combine	51 (both)	23 (both cured)*	45	5 (both failed)**	14	18	35
VVF and RVF	3 (RVF only)			2 VVFs			
Ureteric fistulae	83	77	94	5	6	-	-
Stress incontinence	36	6	17	30	83	-	-
Urethral stricture***	6	1	17	1	17	-	-
Bladder stones with incontinence	1 (abdominal removal)	1	100	-	-	-	-
Overflow incontinence	1 (catherized for 4 weeks)	1	100	-	-	-	-

(*) In eight others, the RVFs were cured. All the RVFs attempted were cured, with the exception of the 5 combined VVF & RVF who failed (**)
two other patients with recent VVFs were cured by catheter for two weeks.

Cure (Table 10) means the patient was totally continent of urine in the case of any type of urine incontinence, or faeces in the case of RVF. Failed repair means the patient remained incontinent of urine or faeces and the surgical defect persisted as before. Stress incontinence implies that the fistula was closed; but the patient remained partially incontinent of urine on straining, e.g. sneezing, coughing, etc. Some include these in their success; but it is probably better to classify them separately.

The highest cure rate was associated with RVF repairs (96%). Indeed, even when the VVFs coexisted with RVFs, the later tended to close when they were singly or simultaneously repaired with the VVFs. The cure rate for combined VVF and RVF repair declined to only 45%. Therefore, it is probably wise to repair one fistula at a time in such cases unless they are not complicated.

The ureteric fistulae were repaired by abdominal route with the exception of one case which was repaired vaginally. The success rate was exceptionally high (94%). These fistulae resulted from Caesarean sections and from abdominal hysterectomies.

The most frustrating procedure in our series is repair for stress urine incontinence. Of the 36 patients treated, only six (17%) were free of symptoms;

but 30 patients (84%) persisted with their stress incontinence.

Women who had stress incontinence were trained in Kegel exercises before discharge. We are also beginning to see more "fresh" fistula-that which has happened in the past 1-3 months. We are now attempting repair on these women at an earlier time.

DISCUSSION

The most prominent feature of these patients is their low level of education (98% have low or no primary education). It seems that low education and poverty are commonly related to each other. According to some studies, they were associated with poor physical access to health services. Also, marginalized women are less likely to meet the cost of accessing these services including transport and the opportunity costs (time spent away from productive activities which is vital for survival for people living in poverty) (5). According to research done in Tanzania, women with some secondary education are 2.6 times more likely to deliver at a health facility than those with no education. On the other hand, the poorest women are more likely to give birth at home (6).

The TDHS 2004/5 report indicates that even if they access antenatal care (ANC), the poor, the less well educated, and rural women are much less likely to receive key ANC interventions. That is, there are differences in basic assessment (blood pressure, urine and blood analysis) as well as for advice on pregnancy complications and birth preparedness (7).

This could mean discrimination against the poor and with low education for quality antenatal care. Contrary to earlier fistula findings, 62.2% were still married and still living with their husbands. This is a contrast with the Ethiopian picture where 54% of the patients were already divorced (8).

Seventy point seven percent of the patients married at a very early age (teenage) and this could be a factor in fistula development (9). Tanzania has a prevalence of 15% of women circumcised with the majority of the ethnic groups not practicing this in our catchment area (7). Only the Kuria of northern Tanzania were consistently counted in our study and they prefer clitoridectomy. There is an indication that circumcision is not an important factor in fistula formation in these patients. In his observation, Muhammad (3) in Dodoma, where circumcision among females is widely practiced, found no relation to female genital mutilation and fistula risk.

The cure rate was 84% and another 12% had stress incontinent and 4% failed. This compares well with the Malawi report of 94.1% rate of closure for VVFs and 78.8% for RVFs (10).

CONCLUSION

As Kelly (11) has pointed out the repair of most genital fistulae, although exacting and time consuming, is a very satisfying branch of surgery and success commonly follows for those who have been adequately trained in the technique. This can be attested by the results of this series. However, the results of stress incontinence repair are quite disappointing in our experience and we are therefore inclined to favour pelvic floor exercises in such cases.

The districts of highest risk identified namely, Kahama (10% of cases), Geita (9%) and Tarime (7%), Kigoma (6%) and Ukerewe (5%) should be targeted for interventions to treat and prevent fistula.

Strategies which we propose would include early placement of indwelling catheters as leakage begins, better access to Caesarean sections when indicated and the building of maternity waiting centres at district level hospitals for prevention of fistula.

Teenage pregnancies predispose women to obstructed delivery and hence to fistula. Delayed child bearing through delayed marriage or family planning could reduce fistulae due to this cause.

Women should not labour for more than 12 hours at a periphery health facility without delivery. They

should be referred much earlier unless delivery is imminent. The proper use of the *partogram* should be encouraged to detect patients whose labour is prolonged.

As a teaching hospital, BMC needs to make sure that issues of obstetric fistula and its prevention are taught at all levels. Meanwhile, the number of obstetric fistulas requiring treatment is unlikely to change in the near future and it is necessary that treatment is available free of charge to these poor sufferers as done at Bugando Medical Centre, through the VVF Project. The cured patients are a source of information for those requiring cure of a fistula and can advise others about the importance of proper care in pregnancy and labour (12).

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