



Catheter treatment as a low-cost power tool in 2.302 patients with a fresh obstetric urine fistula; a call for mass campaign

Kees WAALDIJK

National Obstetric Fistula Center, Babbar Ruga, Nigeria

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ABSTRACT

To show the impact of early indwelling bladder catheterization with high oral fluid intake as an important tool in the immediate management of the obstetric urine fistula. A total of 2.302 patients with an obstetric urine fistula of less than 3-month duration had an indwelling bladder inserted for 4 weeks together with high oral fluid intake upon arrival in the referral center. Several relevant patient and fistula data were given. Out of the total of 2.302 patients the result was healing of the fistula in 1.398 or 61% by this immediate management. The patients not healed by catheter were operated the day after catheter removal. Final overall healing by catheter and/or early closure was achieved in 2.212 patients or 96% with total incontinence in 24 or 1% and milder incontinence but social continence in 20 or 1%. A failure was noted in 23 patients or 1% including mortality in 6 or 0.3%. The outcome was unknown in 67 patients or 3% who did not report for follow-up after catheter insertion. The results were further analyzed as to duration of leaking, as to fistula size, as to Kees classification and as to fistulas related to cesarean section. The early indwelling bladder catheterization with high oral fluid intake as part of the immediate management is highly effective in the treatment of the obstetric urine fistula. If this management could be implemented in any patient with an obstetric urine fistula it would drastically reduce the caseload of patients in the world waiting for an operation, especially since a catheter can be inserted in any setting by a nurse, a midwife or a doctor under low cost.

Keywords: Obstetric fistula; immediate management; indwelling bladder catheterization; high oral fluid intake; low-cost power tool

INTRODUCTION

The obstetric fistula is as old as mankind and has been a source of misery to the women affected. With an estimated prevalence of 2,000,000 women in the world, it continues to be a challenge as a major public health problem, especially in the low- and middle-income countries.¹

The standard treatment as practiced by most surgeons is closure of the fistula after at least 3 months after delivery when all signs of necrosis and inflammation have subsided.

However, the management has to start the moment the urine leaking is manifest whilst spontaneous healing is possible and can be promoted by an indwelling bladder catheter with high

Address for Correspondence: Kees WAALDIJK, National Obstetric Fistula Center, Babbar Ruga, Nigeria

E-mail: kees.waaldijk@yahoo.com **ORCID ID:** orcid.org/0009-0000-4361-9565

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oral fluid intake during the first 3 months as start of an active immediate management.²

Unfortunately, there are no reports on the results of early catheterization on a mass or any other scale.

Rationale for Early Catheterization and High Oral Fluid Intake

Decompression of the bladder for a sufficiently long time so that the eventual fistula edge may be adapted as the necrosis and inflammation subside and the fistula may heal, whilst the high oral fluid intake ensures high urine production to prevent ascending urinary tract infection and blocking of the catheter. The combination works as flushing drainage of the distal urinary tract.

MATERIALS AND METHODS

Materials

During a 40-year period 1983-2022 a total of 9.681 patients with postpartum involuntary urine loss of a duration of less than 3 months have been treated by the author as an immediate management, 3.930 by an indwelling bladder catheter with high oral fluid intake and 5.751 by surgical repair within the first 3 months after childbirth.

Almost all patients coming during the first month after delivery had a catheter inserted irrespective of size and type whilst few could be operated within a few days, the patients coming during the second month after delivery either had a catheter inserted or were operated within a few days, whilst the majority of the patients coming during the third month after delivery were operated within a few days and few had a catheter inserted.

Out of the 3.930 patients treated by catheter 2.302 had an obstetric fistula and the rest had either total urine stress incontinence or overflow incontinence due to a hypotonic bladder.

The obstetric urine fistula was combined with an obstetric stool fistula or stool and/or flatus incontinence in 499 patients or 22%.

The index parity varied from 1 to 16 with the majority of 1.245 patients or 54% being para I indicating the first delivery as a test case.

There were 27 twin deliveries and out of the 2329 infants born 1611 (69%) were male and 718 (31%) were female whilst 406 were born alive out of whom 73 died within the first week remaining only 332 infants alive (10%); the 2:1 ratio of male to female infants cannot be explained by the author though this was found in all obstetric fistula patients as treated by him.

A foot drop was found in 1.660 patients or 72% being bilateral in 1.260, only right side in 235 and only left side in 165, with no difference between right and left.

The Kees classification was used and 458 fistulas were type Kees I, 1.422 were Kees IIAa, 213 were Kees IIAb, 102 were Kees IIBa, 57 were Kees IIBb and 57 were Kees III.

The Kees III fistulas were all vesicocutaneous fistulas, 55 after caesarean section, 1 due to re-opening of urachus fistula after home delivery and 1 due to ruptured uterus/bladder with abscess formation after home delivery.

The fistula size varied from small to extensive and was small <2 cm in 839 patients, medium ≥ 2 to 3 cm in 937 patients, large ≥ 4 to 5 cm in 373 patients and extensive ≥ 6 cm in 153 patients.

Duration of urine leakage was 1-30 days in 1.742 patients, 31-60 days in 448 patients and 61 days to 3 months in 112 patients.

Methods

After history taking and careful examination of all obstetric trauma including longitudinal bladder diameter, urethra length, foot drop, necrosis, anal reflex and rectovaginal fistula, a decision was taken either to operate or to insert a catheter.

If the decision was catheterization, a Foley Ch 18 catheter was inserted and the balloon inflated with 5 mL of normal saline, functioning of the catheter checked and the patient instructed on high oral fluid intake of at least 4-6 liters per 24 hours.

Antibiotics were not prescribed since the fistula is caused by pressure necrosis and not by specific infection and the high urine production will act as a kind of flushing drainage of the bladder preventing ascending urinary tract infection.

Drainage was open into a plastic pot, and the patient instructed not to kink or block the catheter otherwise and to report immediately if there was any problem.

Most patients were kept for the 4-week catheterization in the preoperative ward but many left the hospital to fulfil their domestic duties in their household.

If the catheter got blocked it was either flushed to re-open it or if that failed it was replaced by a new one; if it fell out it was replaced by a new one.

If there was still necrosis or slough as was found in 1.226 patients or 53%, the patients were instructed to use sitz baths 3 times daily inside warm water plus a detergent.

If during the course of catheterization the balloon of the catheter entered the fistula preventing healing or if the prospect of healing was nihil, the catheter was removed and the patients prepared for surgery as soon as the fistula was clean and the condition of the patient in order.

After 4 weeks a vaginal speculum examination was performed to determine if the fistula had healed or not and the catheter removed.³

If it had healed the patient was instructed to continue a high oral fluid intake and to pass urine regularly at least every hour to train the bladder.

The following day the patient was seen again and asked about leaking or not, miction and incontinence.

If she complained of urine leaking or incontinence, a speculum examination was performed to check if it had really healed or if stress incontinence.

If stress incontinence was found, it was explained to the patient that she should continue the bladder drill and it might heal.

Then the patient was discharged from the hospital and instructed to continue the high oral fluid intake, to report back once a month for at least 3-6 months and to refrain from sexual intercourse for a minimum of 6 months.

If it had not healed the patient was operated within 2 days if the fistula was clean and her condition in order.

Fresh obstetric fistulas with catheter are documented in Figures 1, 2.

RESULTS

For a comprehensive understanding the results were analyzed as to overall, as to duration of the fistula, as to fistula size, as to classification and as to caesarean section related fistulas without vesicocutaneous fistulas.

Overall Results

Out of the 2.302 obstetric fistulas, a total of 1.398 or 61% had healed by catheter only out of which 17 had a recurrence after early sex; there was mortality in 5 patients or 0.2% due to gastroenteritis in 2, eclampsia in 2 and found dead in bed in the morning in 1 at day 10, 11, 25, 28 and 42 post delivery.

After an additional 1.071 operations after failed catheter treatment a total of 2.212 patients (96%) had healed with total incontinence in 24 (1%) and milder incontinence but social continence in 20 (1%); with failure in 23 (1%) out of whom 6 had developed a ureter fistula and unknown in 67 (3%) since they did not return for follow-up after catheter insertion; and



Figure 1. Necrotic fistula variety 01

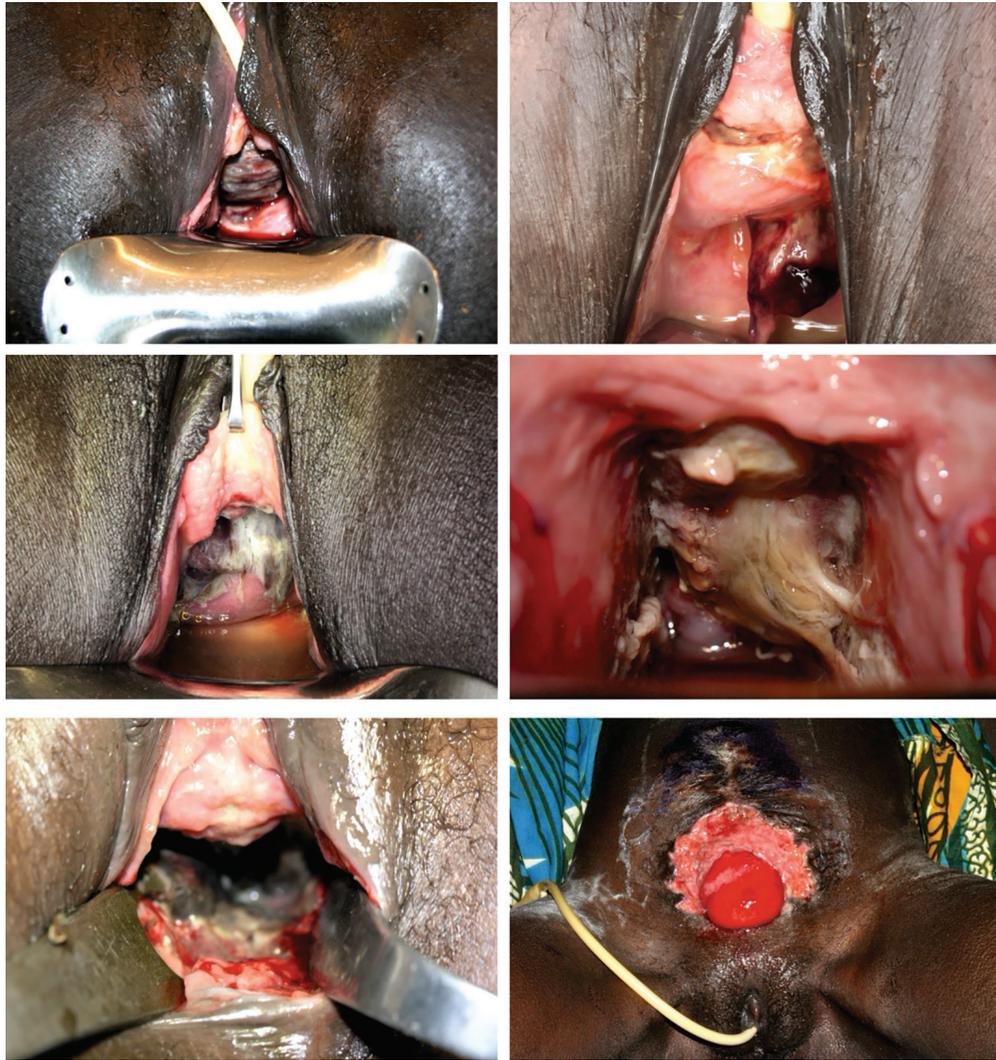


Figure 2. Necrotic fistula variety 02

with a mortality in 6 (0.3%) since 1 additional patient died from hepatorenal failure due to native medicine 15 days postoperatively.

Results as to Duration of Leaking

Out of the 1.742 patients leaking less than 31 days, 991 or 57% had healed by catheter treatment only. Out of the 448 patients leaking 31 to 60 days, 326 or 73% had healed by catheter treatment only. Out of the 112 patients leaking 61 days to 3 months, 81 or 72% had healed by catheter treatment only though the number is too small for any statistics.

Results as to Fistula Size

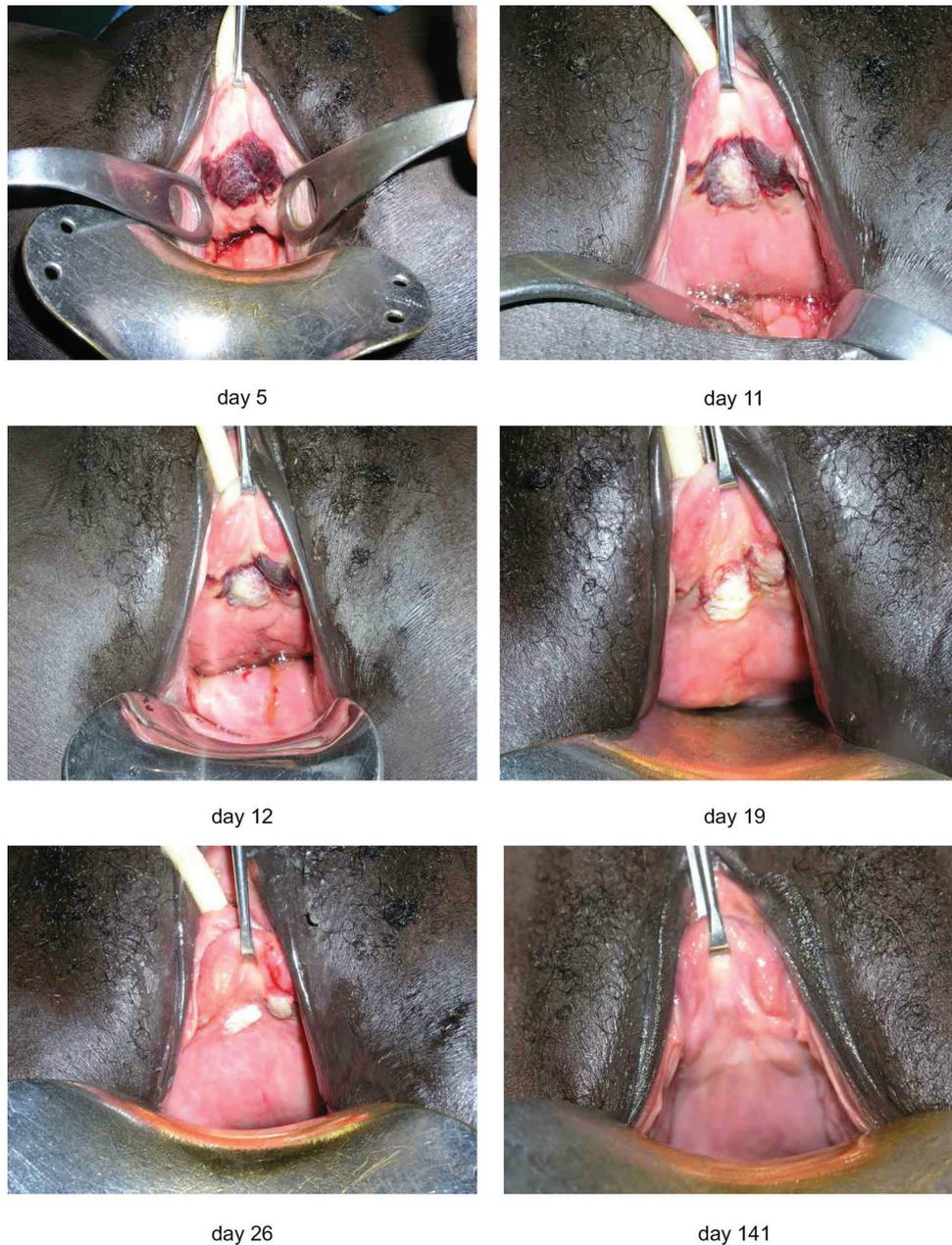
Out of the 839 patients with a small fistula, 647 or 77% had healed by catheter treatment only. Out of the 937 patients with a medium fistula, 529 or 56% had healed by catheter treatment only. Out of the 373 patients with a large fistula, 170 or 45% had healed by catheter treatment only. Out of the 153 patients with

an extensive fistula, 52 or 34% had healed by catheter treatment only.

Results as to Kees Classification

Out of the 458 patients with a Kees I fistula, 267 or 58% had healed by catheter treatment only. Out of the 1,422 patients with a Kees IIAa fistula, 977 or 69% had healed by catheter treatment only. Out of the 213 patients with a Kees IIAb fistula, only 37 or 17% had healed by catheter treatment only. Out of the 102 patients with a Kees IIBa fistula, 65 or 64% had healed by catheter treatment only. Out of the 50 patients with a Kees IIBb fistula, only 2 or 4% had healed by catheter treatment only. Out of the 57 patients with a Kees III vesicocutaneous fistula of which 55 were caesarean section related, 51 or 89% had healed by catheter treatment only.

Then since the caesarean section fistula is on the rise, out of the 304 patients with a caesarean section related fistula but not

cath 866**Figure 3.** Healing process 01

a vesicocutaneous fistula, 167 or 55% had healed by catheter treatment only.

Based upon the theoretic insight and these results, the same was done in another 35 patients with a non-obstetric fistula due to surgery, yankan gishiri, sex or other trauma with the following results: Twenty-one had healed by catheter treatment only and after additional 15 operations 33 had healed with full continence whilst the outcome was unknown in 2 who did not report for follow-up after catheterization. The healing process has been documented in Figures 3, 4.

DISCUSSION

The immediate management was developed during the period 1983-1992 and then further perfected as standard by the author instead of waiting 3 months.

In this study only the early bladder catheterization with high oral fluid intake has been presented to show the power in the management of the obstetric fistula.

The results as to fistula size were as expected, from small to medium to large to extensive. However, the initial size of the

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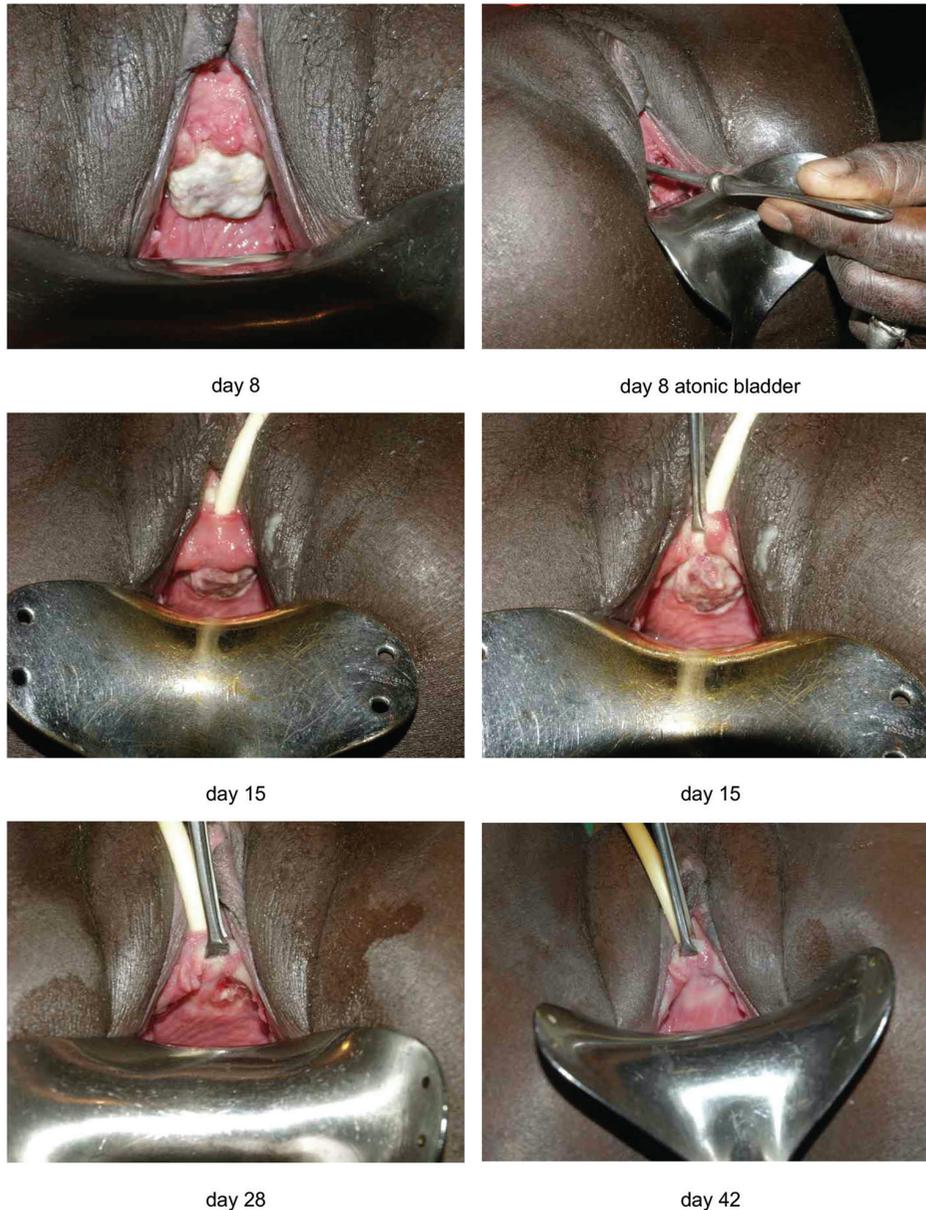


Figure 4. Healing process 02

necrosis is not so important as is the depth of the necrosis which is the decisive factor. Therefore, immediate bladder catheterization is recommended in all obstetric fistula patients irrespective of size as is shown by these results.

To interpret the results as to fistula duration one has to consider that during the first month of leaking almost all the fistula patients had a catheter inserted without any selection and only few were operated whilst for the patients leaking from 31 days to 3 months most patients were operated immediately and few selected patients had a catheter inserted.

The results as to fistula type are fine in Kees I and Kees IIAa fistulas and very low in the fistulas with a circumferential defect, whilst the numbers of Kees IIBa and Kees IIBb fistulas are too low for any reliable statistic evaluation.

The results in caesarean section related fistulas are encouraging, and early catheter treatment in these patients is highly recommended, in the low-, middle- and high-income world.

The results in the 35 patients with a non-obstetric urine fistula are comparable though the number is too small for any statistics.

Another advantage of early catheterization is that it can be done in any setting by a nurse, a midwife, a doctor or an obstetrician without additional skills under low cost as compared to surgery in a high-quality unit by a highly trained surgeon with special surgical skills under far higher cost.

CONCLUSION

The early indwelling bladder catheterization with high oral fluid intake as part of the immediate management is a power tool in the treatment of the obstetric urine fistula. It can be done in any setting by a nurse, a midwife or a doctor under low cost and would drastically reduce the number of obstetric patients in the world waiting for an operation.

Appendix Kees Classification⁴

- Kees I fistulas not involving continence mechanism
- Kees IIAa fistulas involving continence mechanism without (sub) total urethra involvement and without circumferential defect
- Kees IIAb fistulas involving continence mechanism without (sub)total urethra involvement and with circumferential defect
- Kees IIBa fistulas involving continence mechanism with (sub) total urethra involvement and without circumferential defect
- Kees IIBb fistulas involving continence mechanism with (sub) total urethra involvement and with -circumferential defect
- Kees III fistulas miscellaneous like ureter fistulas and vesicocutaneous fistulas

The classification has been documented in Figures 5, 6.

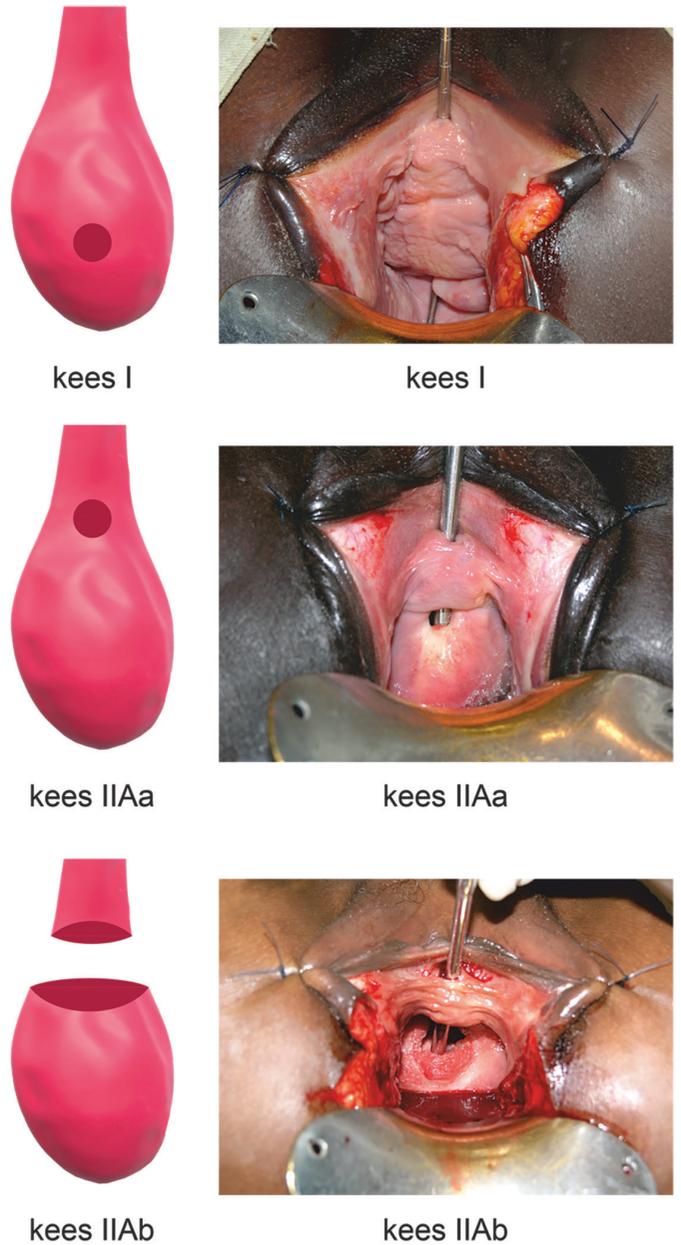


Figure 5. Fistula classification 01

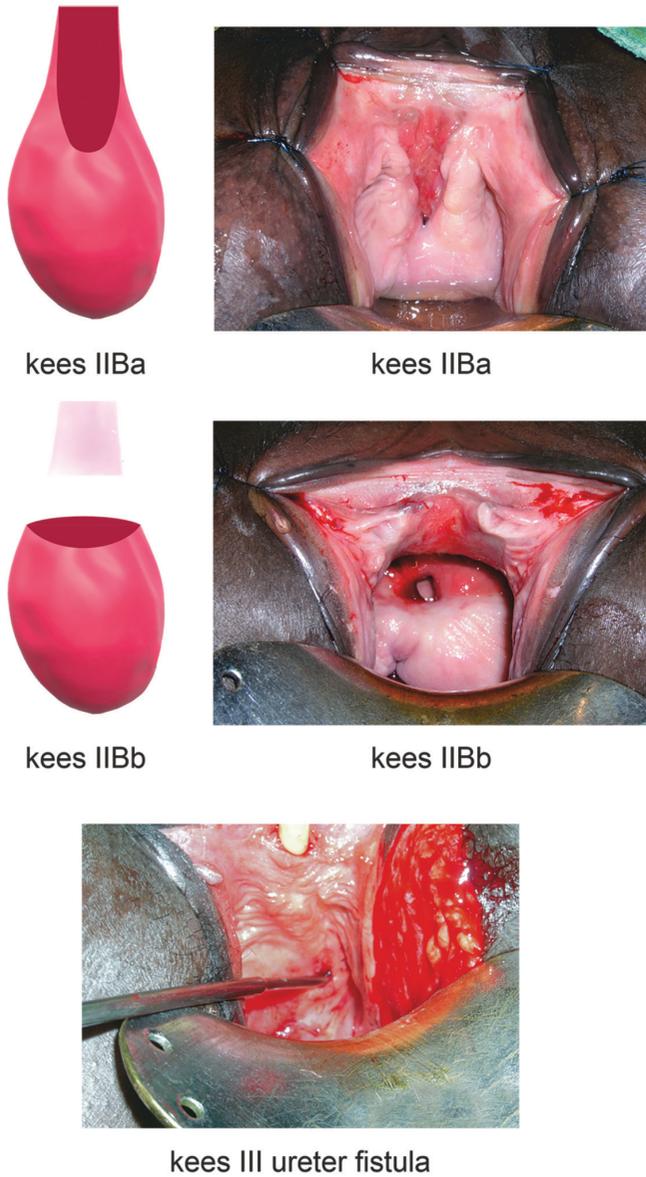


Figure 6. Fistula classification 02

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ETHICS

DISCLOSURES

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