Original Research Article

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Management of complex genital fistula: experience in a tertiary sub-Saharan hospital

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ABSTRACT

Background: Management of complex genital fistulae is challenging due to the cost and technical skill required. This study reports our experience in the management of patients with complex genital fistulae and to highlight the crucial role of the reconstructive urologists.

Methods: This was a retrospective review of female patients managed at a tertiary hospital in Nigeria from 2006 to 2017 for complex urinary fistulae. Data were extracted from patient case notes and the data analysed using the SPSS software.

Results: Twenty-four female patients mean age 28.9±11.1 years. Fistulae resulted from prolonged obstructed labour 10 (41.6%), caesarean hysterectomy 7 (29.2%), caesarean section and abdominal hysterectomy 2 (8.4%) respectively. The fistulae were vesicovaginal 16 (66.7%), ureterovaginal 3 (12.5%). Others were vesicocutaneous, urethrovaginal and rectovaginal. Prior attempts at repair were done in 7 (29.2%) and the number of attempts ranged from 1 to 4. Surgical procedures included direct closure in 9 (37.5%), closure and uretero-neocystostomy 7 (29.2%), uretero-neocystostomy only 3 (12.5%) closure and abdominal hysterectomy 2 (8.3%), closure and continent catheterizable neo-bladder 2 (8.3%) and 1 (4.2%) closure, abdominal hysterectomy and uretero-neocystostomy. Post-operative complications were noted in 2 (8.3%) and consisted of gynaeatresia and recurrent RVF. Repair was successful in 70.8% of patients while failed repair was recorded in 16.7% and while stress incontinence was present in 12.5%.

Conclusions: Complex genital fistulae in our practice are of obstetric origin involving the bladder, ureters and rectum. The reconstructive urologist has a crucial role the management for a favourable outcome.

Keywords: Complex genital fistula, Outcome, Repair

INTRODUCTION

Genital fistula is a physically and psychosocially debilitating condition in which an abnormal connection exists between the genital tract and the urinary or intestinal tract.^{1,2} The major aetiological types of genital fistulae include those occurring in the course of prolonged obstructed labour, iatrogenic injuries due to

damage to the vagina, bladder or ureteral tissues during obstetric or gynaecological surgeries as well as those resulting from trauma such as violent sexual assault, forced insertion of objects into the vagina as well as genital fistulae resulting from traditional genital mutilation.³⁻⁷ Genital fistulae are usually classified based on the organ of origin in the urinary tract and the termination of the fistula.⁸ The common types of genital

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fistulae include vesicovaginal, uretrovaginal, vesicourethral, and vesicouterine fistula. The most comm and this on type of genitourinary fistula is of obstetric origin that result from pressure necrosis that may follow prolonged obstructed labour. This type of fistula has been adduced as an indicator of the quality of maternal healthcare in the third world nations where this is prevalent.⁹

Complex genital fistulae are those that may be associated with prior radiation or malignancy, failed previous repairs or recurrence, large fistulae larger than 2.5 cm, that may involve the trigone or bladder neck or those associated with poor tissue quality or difficult to close. ^{10,11} Management of patients with complex urogenital fistulae in poor resource environment is very challenging due to the cost and technical skill demand of the procedures.

Study report the experience in the management of patients with complex genital fistula in a tertiary health facility in northwestern Nigeria. Convenient sampling technique was employed.

METHODS

This was a retrospective review of female patients who were referred and managed for complex genital fistulae at the urology unit of Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria from January 2006 to December, 2017. Ethical approval was obtained from the Hospital Research and Ethics Committee. Convenient sampling method was employed to select case notes of consecutive patients who were managed for complex genital fistulae.

Relevant information consisting of demographic variables, aetiology of the fistula, was extracted from these case notes and the data analysed using the SPSS software version 20.0 and the results were expressed as means, standard deviations and percentages.

Surgical procedure

Each patient was evaluated by thorough clinical history physical examination. Relevant laboratory and investigations included urinalysis, full blood count, serum electrolytes, urea and creatinine, urine culture and sensitivity studies, clotting profile, and 2 units of blood were cross-matched. Intravenous urography was done in all patients. All patients were reviewed by the anaesthetists and informed consent was obtained for surgery. Each patient had minimal bowel preparation consisting of ingestion of castor oil a night prior to surgery and rectal soap/water enema on the morning of procedure. Anaesthesia was by general anaesthesia with cuffed endotracheal intubation. The patient was placed in low lithotomy position to enable both abdominal and vaginal access and skin preparation was effected from the lower abdomen to the vagina. Patient was draped with sterile sheets and intravenous broad-spectrum antibiotics

was given at induction of anaesthesia. Surgical access was gained through a Pfannestiel incision and the peritoneum was entered in order to allow for better exposure and to enable repair of the fistula and other adjunctive procedures. Direct fistula closure was done in some patients. In others, in addition to fistula closure, ureteric re-implantation, abdominal hysterectomy and in two patients with irreparable fistulae, continent urinary diversion were carried out. Omental interpositional flap was used to interpose the repair. Urethral catheter was placed and left in-situ till healing was complete. Postoperative management included intravenous fluids, antibiotics, analgesics and anti-thrombotic prophylaxis.

RESULTS

There were 24 female patients mean age 28.9±11.1 and a range of 13-55 years. Aetiology of the fistulae were prolonged obstructed labour 10 (41.6%), caesarean hysterectomy 7 (29.2%), caesarian section and abdominal hysterectomy 2 (8.4%) respectively. Other causes were from attempted repair of stress urinary incontinence, childhood measles and as complication of female genital mutilation (Table 1).

Table 1: Aetiology of complex genital fistula.

Genital fistula	N (%)
Prolonged obstructed labour	10 (41.6)
Caesarean hysterectomy	7 (29.2)
Caesarean section	2 (8.3)
Abdominal hysterectomy	2 (8.3)
Female genital mutilation	1 ((4.2)
Measles	1 (4.2)
Post-repair of stress urine incontinence	1 (4.2)



Figure 1: Patient in exaggerated lithotomy position.

The types of fistulae were vesicovaginal (VVF) 16 (66.7%), ureterovaginal (UVF) 3 (12.5%). Others were vesicocutaneous, urethrovaginal and rectovaginal (RVF) fistula involving the bladder neck. Prior attempt at fistula

repair was done in 7 (29.2%) and the number of attempts ranged from 1 to 4. The failed repairs had been done at VVF centre in 3, peripheral hospitals in 2 and in UDUTH, while in 1 patient repair was attempted at both VVF centre and UDUTH.

Surgical procedures included direct closure in 9 (37.5%), closure and uretero-neocystostomy 7 (29.2%), uretero-neocystostomy only 3 (12.5%) closure and abdominal hysterectomy 2 (8.3%), closure and continent catheterizable neo-bladder 2 (8.3%) and 1 (4.2%) closure, abdominal hysterectomy and uretero-neocystostomy. Surgical approaches were vaginal 11 (45.8%), abdominal (37.5%) and combined abdomino-vaginal 5 (20.8%) (Table 2).

Table 2: Type of surgical procedure.

Surgical procedure	N (%)
Fistula closure only	9 (37.5)
Fistula closure and ureteroneocystostomy	7 (29.2)
Ureteroneocystostomy only	3 (12.5)
Fistula closure and abdominal hysterectomy	2 (8.3)
Fistula closure and continent catheterizable neobladder	2 (8.3)
Fistula closure, abdominal hysterectomy and ureteroneocystostomy	1 (4.2)
Total	24 (100.0)

Post-operative complications were noted in 2 (8.3%) and consisted of gynaeatresia and recurrent RVF. Seventeen (70.8%) patients achieved continence, failed repair in 4 (16.7%) while 3 (12.5%) had post-repair stress urine incontinence.

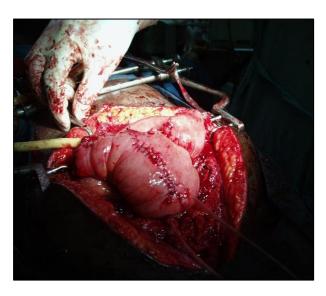


Figure 2: Construction of a continent catheterisable neobladder.



Figure 3: Postoperative catheterisable stoma.

DISCUSSION

The age of the subjects in this study ranged from 13-55 years with a mean of 28±11.1 years. This is similar to the findings of Kumar et al, Karateke et al and Amitava et al. 12-14 This age range is within the child-bearing age of women as well as the age when obstetric and gynaecologic surgeries are most commonly performed. The youngest patient in this study was 13 years at the time of presentation. In this patient, the fistula was neither of obstetric nor iatrogenic gynaecologic origin but had arisen after the patient had a bout of fever, redness of the eyes and in what appeared as a case of measles in late childhood.

The aetiology of genital fistulae varies geographically between the developing and the developed world. Is In this study, genital fistulae occurred mainly as a complication of prolonged obstructed labour which at times resulted in ruptured uterus and the consequent caesarean hysterectomy as has been similarly reported in other low-income developing countries. It These fistulae resulting from prolonged obstructed labour as a consequence of the severe tissue assault are usually of larger diameter, have more necrotic edges and thus qualifying them as complex genital fistulae. It Is In this study is the severe tissue assault are usually of larger diameter, have more necrotic edges and thus qualifying them as complex genital fistulae.

The study demonstrated a significant number of the subjects developed genital fistulae as complication of obstetric and gynaecologic surgical interventions such as caesarean section and abdominal hysterectomies has been similarly reported by Popoola et al and Raashidi et al. ^{19,6} The genital fistulae present in these patients following caesarean hysterectomy could have been initiated by the prolonged obstructed labour event, but may have been worsened by the surgical procedure. The patients who developed genital fistulas after caesarean section or caesarean hysterectomy usually present as emergencies, at odd hours of the day both at the peripheral hospitals as well as at the tertiary hospitals and are usually handled by junior, less experienced surgeons and these further

increase the risk of complications including the development of genital fistulae.

The major site of fistulae in this series of patients was vesico-vaginal which reflects similar trends as has been reported by Melah et al in north-eastern Nigeria, a subregion of the country that has similar economic and socio-cultural environment as this study.²⁰ The persistent predominance of vesico-vaginal fistulae in our practice is due to the continued presence of poor access to ante-natal and delivery services with the ensuing prolonged obstructed labour and the resultant fistulae. Some of the patients had undergone attempts at fistula repairs at the peripheral hospitals, VVF centres as well as at our facility where the repairs were done by the gynaecologists prior to referral to the urologists. This demonstrates the crucial role of the latter in the repair of complex genital fistulae as a consequence of the urologist's training and familiarity with the uro-genital anatomy especially of the bladder and the ureters.

Controversies continue to rage among fistula surgeons on the optimum route for repair of genital fistulae especially vesicovaginal fistulae. The route chosen depends on several factors such as the training, surgical skills and expertise/ experience of the surgeon, patient anatomic factors such as fistula characteristics (size, location, severity) and involvement of other structures. 21,22 In this series, the abdominal and combined abdomino-vaginal routes were applied in the repair of more than half of the patients. This is due to the fact that sixteen (64%) patients, had in addition to fistula closure, other adjunctive procedures such as ureteric re-implantation, abdominal hysterectomy, and construction of continent catheterizable neo-bladder that were done as has been similarly reported by Rutam et al.¹⁰ These adjunctive surgical procedures in addition to the fistula closure are better done through the combined abdomino-vaginal route. This study did not evaluate the outcome based on the route of fistula repair. Genital fistulae referred to the urologist are most probably repaired by the abdominal route and in working with the gynaecologist, a combined abdomino-vaginal route as shown in this report is usually desirable and adopted. This is because the urologist by his training and experience is more comfortable with the abdominal approach due to his familiarity with intraabdominal anatomy, but importantly, many of the referrals to him are after previous failed vaginal repairs or that the fistulae are iatrogenic resulting from abdominal obstetric or gynaecologic surgeries. Bello et al in their study showed no difference in outcome between the abdominal or vaginal routes of repair.²³ It must be noted that the mentioned authors are gynaecologists and by training and experience are likely to be more comfortable with the vaginal route coupled with the fact that their study subjects all had uncomplicated mid-vaginal vesicovaginal fistulae though the aetiologies of the fistulae were not mentioned in the report. The midvaginal VVF are usually repaired by the vaginal route and this falls within the domain of the gynaecologists.

However, a team of urologist led by Wadie et al in their study demonstrated the superiority of the abdominal route over the vaginal or combined abdomino-vaginal approach. Again, this finding could be as a result of the bias arising from the authors' training, practice and experiences as urologists.²⁴

Urinary diversion is an option in management of patients with irreparable complex genital fistulae. 25,26 These are patients who had sustained extensive, damage to the anterior vaginal wall. and at times with total urethral loss, coupled with severe scarring as well as having undergone multiple, previously failed repairs. Other patients in this category include those with large fistulae, diminished bladder capacity and loss of the mechanisms.²⁷ Two of our patients had irreparable vesicovaginal fistulae and had construction of continent catheterizable ileal neo-bladder. In one of such patients the fistula had occurred in late childhood after what appeared to be measles and by the time of presentation in early adolescence, initial repair showed a large fistula with severely compromised bladder capacity and that initial repair had failed. The second patient developed enterocutaneous fistula, rectovesical fistula in addition to loss of the posterior vaginal wall, total urethral loss following prolonged obstructed labour and caesarean hysterectomy at the referral peripheral hospital. After initial colostomy and closure of the intestinal fistula she had construction of the continent catheterizable neobladder.

Successful outcome for fistula repair consists of closure, and absence of residual urine incontinence.²⁴ In this study, successful repair was encountered in 17 (70.8%) of the patient and this compares with Osman et al and Bello M et al in reports from Riyadh, Saudi Arabia and Ibadan, Nigeria respectively though Amitava et al had a much higher success/cure rate from their series. 14,18,23 This difference may be due to the nature of the fistulas in our study population. As reported by Amitava et al and Egziabher et al, the successful repair of genital fistulas is most likely to occur in the first than in subsequent attempts and a number of our patients had had previous failed attempts at repairs and the number of the previous attempts ranged between to 4 times prior to their referral to our facility. 14,27 These previous failed attempts would have resulted from increased vaginal scarring, larger fistula sizes and reduced bladder capacities; factors which have been documented to further reduce the success/cure rate.28

Three patients had fistula closure but developed stress urine incontinence (SUI) as has been reported by Sori et al.²⁹ These patients who were observed to have developed stress urinary incontinence were probably those who had some urethral involvement or those who had existing preoperative SUI which were not apparent to the patient nor recognized by the surgeon till after fistula closure.

CONCLUSION

Complex genital fistulae in our practice are mainly of obstetric origin as well as following emergency caesarean hysterectomies and usually involve the bladder, vagina, ureters and the urethra. Most of these complex fistulae are repaired by the abdominal and combined abdominovaginal routes. In the most severe cases of irreparable fistulae due to urethral or significant bladder loss, reconstruction of catheterizable neo-bladder may become the best option to achieve urine continence. The reconstructive urologists in conjunction with the urogynaecologists have crucial roles in the management of these patients in order to ensure a favourable outcome.

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