Long-Term Functional Outcomes Following Nonradiated Vesicovaginal Repair

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Abbreviations and Acronyms

FSD = female sexual dysfunction
LUT = lower urinary tract
Q = question
QoL = quality of life
VAS = visual analog scale
VCUG = voiding cystourethrogram
VVF = vesicovaginal fistula

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Purpose: We investigated the long-term impact on bladder and sexual symptoms in women with prior vesicovaginal fistula repair, particularly those previously treated before referral.

Materials and Methods: After receiving institutional review board approval we reviewed the charts of women who underwent nonradiated vesicovaginal fistula repair for demographics, surgical approach (vaginal or abdominal) and functional outcomes with a minimum 6-month followup. Patients lost to followup were reached by a structured phone interview and/or mailed validated lower urinary tract questionnaires, including the UDI-6 (Urogenital Distress Inventory-6), IIQ-7 (Incontinence Impact Questionnaire-7) and FSFI (Female Sexual Function Index). Three surgical groups were compared, including naïve—no prior repair, recurrent—1 prior repair and other—more than 2 repairs with the hypothesis of worse outcomes with more repairs.

Results: From 1996 to 2011 vesicovaginal fistula repair was performed in 66 patients, including in 42 as primary treatment (vaginal vs abdominal approach in 31 vs 11), in 14 as secondary treatment, and in 10 who underwent more than 2 repairs. Mean patient age was 45 years (range 24 to 87), mean body mass index was 29 kg/m^2 (range 19 to 43) and mean followup was 55 months (range 6 to 198). The overall repair success rate was 97%. There was no difference in functional outcomes in questionnaire responders among the 3 groups for lower urinary tract symptoms (62% on UDI-6/IIQ-7). However, for FSFI (33% of patients) there was female sexual dysfunction in patients who underwent transabdominal repair and in women with 2 repairs.

Conclusions: Long-term followup of patients with vesicovaginal fistula repair indicated no differences in lower urinary tract outcomes at a mean 7-year followup between primary and recurrent repairs. There was a difference in sexual function, although it was not statistically significant. Sexual activity among responders was low.

Key Words: urinary bladder; vagina; fistula; sexual dysfunction, physiological; questionnaires

Successful VVF repair can be a life changing event with restored quality of life. However, while the current literature is replete with case series of the outcomes of anatomical successes, often with short-term followup,[1,2] much of the functional aspects of pelvic floor outcomes after repair are largely unknown. LUT function and sexual function in particular have not been much investigated in the postoperative setting. The situation is aggravated by

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the high attrition rate on followup, making long-term assessment of these patients difficult.[2] Another notable problem is what happens to patients who undergo multiple repairs. Are there any deleterious sequelae to bladder function? Do patients with secondary or multiple repairs fare as favorably as those with primary repair?

We reviewed composite surgical and functional outcomes in women treated with VVF repair at our tertiary institution. We particularly evaluated whether the nature of repair (primary vs recurrent) and the surgical approach (vaginal vs transabdominal) impacted these outcomes.

METHODS

Data collection and database use were approved by our institutional review board. We retrospectively reviewed the records of 96 consecutive adults treated with nonradiated VVF repair at our institution from 1996 to 2011. Medical record data were reviewed on 1) demographics, 2) time from injury to definitive repair, 3) fistula characteristics, including size, site and number of fistulas confirmed on imaging (VCUG, computerized tomography urogram, cystoscopy or retrograde pyelogram), 4) surgical approach (vaginal or abdominal), 5) perioperative complications and 6) functional outcomes based on validated questionnaires.

VVF repair procedure and any other associated indicated procedure, such as ureteral reimplantation, was performed by 2 fellowship trained urologists at our institution (GEL and PEZ) using established techniques.[3,4] Surgical approach was determined at surgeon discretion depending on VVF location, number of fistulas, adequate fistula tract access and involvement of other genitourinary structures, ie the ureter. A third party investigator (DL) who did not participate in operations performed data collection.

In all patients radiological assessment of fistula closure was done with lateral standing VCUG at 4-week followup. Patients were followed at 6 months and yearly thereafter. For functional outcomes all patients were mailed validated questionnaires, including the UDI-6, IIQ-7 and FSFI, and 1 global QoL question scored on a VAS of 0—excellent to 10—terrible.[5] Patients lost to followup were reached by a structured phone interview incorporating the same questionnaires. Study inclusion criteria included all VVF patients with a minimum 6-month followup and age 18 years or greater. A good QoL outcome on the VAS was defined as 3 or less. A score of 26.5 or less on the FSFI was classified as FSD.[6] We compared 3 surgical groups, including group 1—naïve with no prior repair, group 2—recurrent with 1 prior repair and group 3—other with more than 2 repairs.

Descriptive statistics were used to characterize demographic data. We used the independent t-test to detect differences in functional outcomes between the surgical groups with statistical significance considered at $p < 0.05$. SPSS®, version 16 was used for all statistical analysis.

RESULTS

We identified 75 consecutive patients in our prospective database treated with VVF surgery. Nine patients (14%) were excluded from final analysis, of whom 5 had died and 2 each underwent surgery related to urethrovaginal fistula and neobladder complications, respectively, leaving a total of 66 for final analysis. Mean age in the group was 45 years (range 24 to 87) and mean followup was 55 months (range 6 to 198). VVF was done after hysterectomy in 88% of the 66 women, while in 24 (36%) prior attempts at VVF repair were done elsewhere. Table 1 lists baseline demographic data.

A total of 68 VVF repairs were performed (table 2), including 74% approached vaginally and

Table 1. *Demographic characteristics in 66 patients with VVF repair*

	Primary	Secondary	Greater Than 2	Totals
Mean ± SD age at surgery	46 ± 11	44 ± 10	44 ± 10	45 ± 10.4
Mean ± SD body mass index	31 ± 6.7	25 ± 6.4	48 ± 6.4	29.3 ± 7
Mean ± SD followup (mos)	55 ± 63	48 ± 47	62 ± 59	55 ± 58
No. menopause:				
No	33	13	7	53
Yes	9	1	3	13
No. VVF etiology:				
Hysterectomy, unknown route	28	11	9	48
Abdominal hysterectomy	5	2		7
Vaginal hysterectomy	1	1		2
Laparoscopic hysterectomy	1			1
Obstetric	2		1	3
Other	5			5
No. previous VVF repair approach:				
Unknown		8	2	10
Transvaginal		2	2	4
Abdominal		4	3	7
Transvaginal + abdominal			3	3
No. previous surgery-definitive VVF repair (mos):				
Less than 3	11	3	0	14
3 or Greater	31	11	10	52