

## Success Rate of Urogenital Fistula Repair and Predictors of Success: An Audit of Ten Years Data

Nasira Tasnim<sup>1</sup>, Kauser Bangash<sup>1</sup>, Oreekha Amin<sup>1</sup>, Afshan Batool<sup>1</sup>, Nosheela Javed<sup>1</sup>

<sup>1</sup>Department of Maternal and Child Health, Pakistan Institute of Medical Sciences, Islamabad, Pakistan

DOI: <http://dx.doi.org/10.3126/njog.v13i2.21701>

### ABSTRACT

**Aim:** To evaluate the association of various predictive factors with the outcome of surgical repair of vesicovaginal fistula.

**Methods:** The retrospective analysis was conducted at Maternal and Child Health, Pakistan Institute of Medical Sciences, Islamabad, and it comprised data related to patients having undergone vesicovaginal fistula repair from January 2008 to June 2018. Statistical analysis of the record was done using SPSS 21 software.

**Results:** A total of 364 patients of urogenital fistula repair were reviewed, with an overall success in 318 (87.4%) cases. There were no significant differences in fistula duration (p0.4), size of fistula (p 0.34) and accessibility (p0.5) between successful and unsuccessful group. However, we found the association between the type of fistula and history of previous repair attempts with the success of fistula repair. Primary surgical repair of vesicovaginal (90.0%), vesicouterine (86%), ureteric (100%) and ureterovaginal (98%) were more successful as compared to repair with the history of 1 previous attempt (90.3%, 83.3%, 66.6% and 75% respectively). Success rate was found to further decrease with the history of more than one repair attempt of vesicovaginal (71.4%) and vesicouterine (66.5%) fistula. Further, successful fistula repair in women was also found to be significantly associated with parity less than 4 (p 0.038).

**Conclusions:** Despite the higher success rate of urogenital fistula repair, it's important to refer the urogenital fistula patients timely to specialized fistula centres in order to achieve best results.

**Keywords:** fistula, predictors, success, urogenital fistula.

### INTRODUCTION

Urogenital fistula is an abnormal communication between the urinary tract and the genital region. It has great impact on social, psychological, and sexual life of affected patients. The World Health Organization estimates that between 50 000 to 100 000 women worldwide develop obstetric fistula each year.<sup>1</sup> The prevalence of urogenital fistula in the reproductive age group is 1.60 per 1000 women in South Asia.<sup>2</sup> In developing countries, this complication is usually of an obstetric origin such as obstructed or prolonged labour.<sup>3</sup> It occurs in areas where access to care at childbirth is limited, or of poor quality. In contrast, in developed countries, pelvic surgeries or radiation therapies are mainly responsible for urogenital fistula development.<sup>4</sup> The success rate of primary surgical repair is as high as 85 to 95%.<sup>5</sup> However, the fistula patients pose a considerable challenge for the surgeon in terms of success due to multiple factors responsible for the success (type of fistula, previous repair attempt, parity, size of fistula, accessibility).<sup>6,7</sup> Among those, history of previous repair attempts has

been reported to be the most consistently related to the success of fistula repair.<sup>8,9</sup> As prior knowledge of the predictors of success helps to counsel the patient and to individualize the management, we did a retrospective analysis on prospectively collected data of patients who attended our center for urogenital fistula management. Data was analysed to determine the incidence of urogenital fistula and determine the association between various factors which could influence the successful repair.

### METHODS

The retrospective study was conducted at Department of Maternal and Child Health, Islamabad, on women who had undergone urogenital fistula repair from January 2008 to June 2018. Ethical review board approval was obtained. All patients who had their fistula repaired at the hospital were included in the study. Data was collected regarding patient's age, parity, type of fistula, duration and size of fistula. Further, we assessed the association of fistula repair outcome with the number of previous repair attempts and accessibility of fistula vaginally.

All patients underwent examination under anesthesia, intravenous urography and cystoscopy (if required) in order to identify the characteristics of fistula. Based

### CORRESPONDENCE

Dr Oreekha Amin  
Department of Maternal and Child Health,  
Pakistan Institute of Medical Sciences, Islamabad, Pakistan  
Email: oreekha@gmail.com

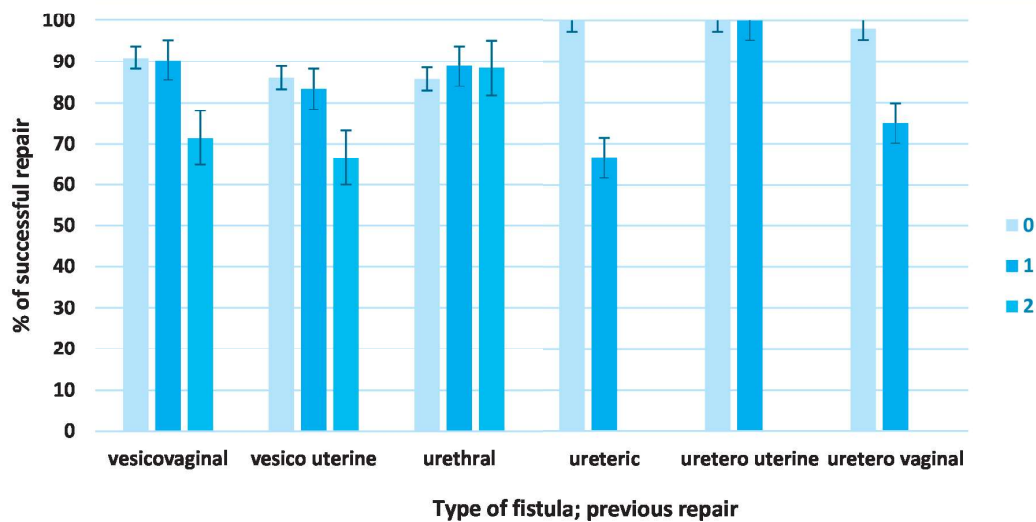
on accessibility of fistula from vagina, decision was made about the route of surgery (vaginal/abdominal). All surgical repairs were performed by consultant level surgeons. Post-operatively, all the patients remained catheterised for a period of 21 days. Assessment for successful fistula closure and stress incontinence after surgery was done using a dye test before discharge. Data was analysed using SPSS 21. Chi-square test was used to determine the association of predictors of outcome of urogenital fistula repair ( $p \leq 0.05$  was considered as significant).

## RESULTS

The mean age of the total 364 patients was  $34.16 \pm 10.26$  years (range: 15-75). Out of these, 318 (87.4%) had successful closure of their fistulae. The most common type of fistula encountered was vesicovaginal fistulas (63%). Further, women with no history of previous repair were more likely to have successful surgical repair as compared to those with the history of previous repair attempts. Successful repair of vesicovaginal, vesicouterine, ureteric and ureterovaginal type of fistula were found to be significantly associated with the history of previous repair of fistula, as shown in Table 1 and Figure 1.

**Table 1: Percentage of successful repair of urogenital fistula with or without history of previous repair attempts**

Previous Repair (n)	Vesicovaginal (n=228)	Vesicouterine (n=44)	Urethral (n=38)	Ureterouterine (n=34)	Ureterovaginal (n=20)
0 (122)	90.9%	86%	85.7%	100%	98%
1 (141)	90.3%	83.3%	88.85%	100%	75%
2 (101)	71.4%	66.6%	88.4%	-	-



**Figure 1. Percentages of successful repair of urogenital fistula with or without history of previous repair attempts (0, 1, 2).**

Moreover, success rate of fistula repair was found to be more in women with parity less than 4. Age, duration of fistula, fistula size and accessibility did not affect the outcome significantly (Table 2).

**Table 2: Chi-square test for association of successful urogenital fistula repair with the predictive factors.**

	Successful %	Unsuccessful %	P value
<b>Parity</b>			<b>0.038</b>
0 (142)	90 %	10 %	
<4 (192)	91.3%	8.7%	
>4 (30)	83%	17%	
<b>Duration of fistula</b>			<b>0.4</b>
3-6 months (51)	82.3%	17.6%	
6-12 months (127)	66.6%	33.3%	
2-5 yrs (157)	91.67%	8.3%	
6-10 yrs (29)	66.7%	33.3%	
<b>Fistula Size</b>			0.3
1.5 (148)	76.9%	23%	
1.5-3 (161)	84%	16%	
>3 (55)	86%	14%	

## DISCUSSION

Genital tract fistula is a social debilitating and most troublesome condition. It is a problem commonly encountered in the developing world that affects young women during labour and the delivery process. Therefore, early identification of pelvic floor and perineal damage sustained during childbirth is vital. Main treatment for all types of fistulas remains surgery. Concerning the surgical repair timing, a delay of 3 to 4 months is generally recommended for repair.<sup>10</sup> Studies also reported that timing of repair does not affect the outcome.<sup>11,12</sup> However, some studies show that early repair of uninfected fistula has similar success rates as compared to delayed repair.<sup>13,14</sup> In our study, success rate of surgical fistula repair was found to be not associated with the timing of repair. Further, it was reported that large size of fistula is more likely to be repaired unsuccessfully.<sup>15,16</sup> However, according to our data analysis, no association was observed between preoperative size of fistula and successful surgical repair. Similarly, route of repair (vaginal/abdominal) has insignificant effect on the outcome of repair.

As reported previously, history of previous one or more than one failed attempt at repair is found to be the significant determinant of failed fistula closures.<sup>17-19</sup> We found increased success rate of fistula repair when there was no history of previous fistula repair attempt. Women with prior history of fistula repair had also more successful rate of surgical repair as compared to women with previous one or more repair attempt.

Further, previous studies reported mixed association of women's parity with the fistula repair success.<sup>9</sup> In our study, we found significant association of women parity ( $\geq 4$ ) with the unsuccessful fistula repair.

Despite all these predictive factors, we need to engage the women, their families and their society to help treat the current problem. As the most important factors contributing to the high incidence and prevalence of obstetric fistulas in underdeveloped countries are poor socioeconomic infrastructures, lack of access to emergency adequate obstetric services.<sup>20</sup> Improving access to early and effective services especially to women at community level is key to identifying potentially at-risk mothers and planning for optimal obstetric care. Equally important is the role of specialised fistula centres. The patients with urogenital fistula should be timely referred to specialized centre to achieve high level optimal results of surgical repair. In our study, there were certain limitations regarding performing urodynamic studies in all patients due to non-affordability of patients. Therefore, there could have been challenges in patient assessment. Yet, our study, with a large number of cases, shows an effort to analyse the factors which provide the best chances of successful closure of the fistula.

## CONCLUSIONS

Our study represents an effort to identify the predictive factors which present the foremost chances of successful fistula repair with continuing a normal life with restoration of continence.

## REFERENCES

- 10 facts on obstetric fistula [Internet]. Geneva: World Health Organization; 2014. Available from: [http://www.who.int/features/factfiles/obstetric\\_fistula/en/](http://www.who.int/features/factfiles/obstetric_fistula/en/).
- Adler AJ, Ronsmans C, Calvert C, Filippi V. Estimating the prevalence of obstetric fistula: a systematic review and meta-analysis. *BMC Pregnancy Childbirth*. 2013;13: 246.
- Osman SA, Al-Badr AH, Malabarey OT, Dawood AM, AlMosaieed BN, Rizk DE. Causes and management of urogenital fistulas: A retrospective cohort study from a tertiary referral center in Saudi Arabia. *Saudi Med J*. 2018;39(4):373-8.
- Moir JC. Vesicovaginal fistula as seen in Britain. *J Obstet Gynaecol Brit Commonw*. 1973; 80(7):598-602.
- McFadden E, Taleski SJ, Bocking A, Spitzer RF, Mabeya H. Retrospective review of predisposing factors and surgical outcomes in obstetric fistula patients at a single teaching hospital in Western Kenya. *J Obstet Gynaecol Can*. 2011;33(1):30-5.
- Wadie BS, Kamal MM. Repair of vesicovaginal fistula: Single centre experience and analysis of outcome predictors. *Arab J Urol*. 2011;9:135-8.
- Karateke A, Asoglu MR, Selçuk S, Cam C, Tuğ N, Ozdemir A. Experience of our surgery in iatrogenic vesicovaginal fistulas. *J Turkish-German Gynecol Assoc*. 2010;11:137-40.
- Wall LL, Karshima JA, Kirschner C, Arrowsmith SD. The obstetric vesicovaginal fistula: characteristics of 899 patients from Jos, Nigeria. *Am J Obstet Gynecol*. 2004;190:1011-6.
- AJaved A. Doctor! Will I be dry? Factors determining recurrence after vesicovaginal fistula repair. *JPMA*. 2015;65(9):954.
- O'Connor VJ Jr. Review of experience with vesicovaginal fistula repair. *J Urol*. 1980;123:367-9.
- Melah GS, El-Nafaty AU, Bukar M. Early versus late closure of vesicovaginal fistula. *Int J Gynaecol Obstet*. 2006;93:252-3.
- Lewis A, Kaufman MR, Christopher E, Phillips S, Maggi D, Condry L, et al. Genitourinary Fistula Experience in Sierra Leone: Review of 505 Cases. *J Urol*. 2009;181:1725-31.
- Eilber KS, Kavalier E, Rodriguez LV, Rosenblum N, Raz S. Ten-year experience with transvaginal vesicovaginal fistula repair using tissue interposition. *J Urol*. 2003;169:1033-6.
- Blandy JP, Badenoch DF, Fowler CG, Jenkins BJ, Thomas NW. Early repair of iatrogenic injury to the ureter or bladder after gynaecological surgery. *J Urol*. 1991;146:761-5.
- Zhou L, Yang TX, Luo DY, Chen SL, Liao BH, Li H, et al. Factors influencing repair outcomes of vesicovaginal fistula: a retrospective review of 139 procedures. *Urol Int*. 2017;99:22-8.
- McFadden E, Sarah JT, Bocking A, Rachel F, Mabeya H. Retrospective review of predisposing factors and surgical outcomes in obstetric fistula patients at a single teaching hospital in Western Kenya. *J Obstet Gynaecol Can*. 2011;33:30-5.
- Egziabher TG, Eugene N, Ben K, Fredrick K. Obstetric fistula management and predictors of successful closure among women attending a public tertiary hospital in Rwanda: a retrospective review of records. *BMC Res Notes*. 2015;8(1):774.
- Zimmern PE and Leach GE. Transvaginal vesicovaginal fistula repair. In: *Female Urology*. ED Kursh, editor. Philadelphia: JB Lippincott; 1994; chap 27: 369-81.
- Nesrallah LJ, Srougi M, Gittes RF. The O'Connor Technique: The Gold Standard for Supratrigonal Vesicovaginal Fistula Repair. *J Urol*. 1999;161(2):566-8.