

Frequency of Success in Surgery of Vesicovaginal Fistula by Layered Closure with Graft Repair

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ABSTRACT

Introduction: Vesicovaginal fistulae is abnormal communication between bladder and vagina that cause continuous dribbling of urine. It is physically, mentally and socially distressing condition. There are various approaches for surgeries of these urogenital fistulae with different success-rate that depend upon the experience of surgeon and surgical procedures. This study can help us to estimate the success rate of layered repair with graft in vaginal route to make stragedy to adopted in severe patient.

Objective: To determine frequency of success in surgery on vesic-ovaginal fistulae by layered closed with graft repair procedures among patients admitted in Isra University.

Setting: Obstetrics & Gynecology department in Isra university hospital

Duration: 6 months from 10.2.2014 to 10.8.2014

Study Design: Case series

Subject and methods: A total of 100 patients after having surgery for vesicovaginal fistula by layered closure with graft repair was included in this study. History and examination of all subjects were taken. The follow up visit was planned after 3 weeks of surgery. All women was questioned for recurrence of continuous urinary leakage and that without such symptoms proved by absence of leakage on methylene blue dye test was labeled as 'success'.

Results: - Frequency of success in surgery on vesic-ovaginal fistulae by layered closed with graft repair procedures was observed in 88% cases.

Conclusion: The success rate of VVF repair by layered closed with graft repair procedures is high. It is concluded that obstetric urogenital fistula is a preventable condition.

Keywords: Vesicovaginal fistulae, Layered closed, Graft repair, urogenital fistula

INTRODUCTION

Vesicovaginal fistulae is abnormal communication between bladder and vagina that causes continuous dribbling of urine. It is physically, mentally and socially distressing condition. Due to continuous soiling and odour it had a profound impact on physical and emotional well being of patient. WHO estimated that some 21 million women living with fistulae worldwide and there was additional of 50000 to 100000 new cases per year reported. Vesicovaginal fistula from Pakistan, Bangladesh, India, Nepal, Sri Lanka and Thailand revealed that frequency of VVF 0.5-3.7% of all admission in gynecological ward.¹⁻³

The etiology of urogenital fistula had been changed over years from obstetrics to gynecological cause however worldwide prolonged obstructed labour is leading cause of VVF. In study conducted in 2011 shows that main cause of VVF was obstetrical 87.5%. It is one of the most feared complication for female in obsteric and gynecological surgery.^{4, 5}

Even though, the urogenital fistula is a significant cause of morbidity, but the condition remains preventable and treatable. There are various approaches for surgeries of these urogenital fistulae with different success rate that depend upon the experience of surgeon and surgical procedures. Most gynecologist seem to favour the transvaginal repair and it is less invasive in terms of cosmetics and patient comfort^[2]. In study conducted in Pakistan shows that 97% of fistula repaired transvaginally irrespective of site and type of fistulae. The vesico-vaginal fistula is most common type of genitourinary fistula, comprising of 89.9% followed by urethra-vaginal, uro-genital, vesico-uterine and vesico-cervical fistulae.⁶⁻⁸

Small fistula with good tissue mobility is repair by layer closure and complex fistula repair need tissue interposition like peritoneum, martius and omentum graft. Interposition of well vascularized graft enhances blood supply to site of fistula. Martius fat pad used in vaginal repair and omentum and peritoneal flap in abdominal repair.⁸

Success rate was 96% with omental graft and 84% with layered closed in a one of the study conducted in Rawalpindi. Success rate was 83.3% for abdominal route and 100% for vaginal route in one of the study conducted in 2011. In a recent study conducted in 2009, the success rate following first, second and third repair was found 85%, 91% and 96%, respectively. No such comparison seen between different martius graft with layered closure.^{4, 9}

The variation in success rate was seen between layer and omental graft in abdominal route. However there is lack of study between success rate between layer and graft vaginally. The comparison between abdominal and vaginal route has been carried out by mostly urologist but it not compare between layer and graft so this study will help us to estimate the success rate of layered repair with graft in vaginal route if success rate formed to high then this same procedure will be adopted in severe patient.

Objective: To determine frequency of procedures among patients admitted in Isra University.

MATERIAL AND METHODS

Study Design: case series

Setting: This study was conducted at Obstetrics & Gynecology department in Isra university hospital

Duration: 6 months from 10.2.2014 TO 10.8.2014

Sample Size: On taking confidence level of 95%, margin of error of 4% and proportion of 96% then the sample size will be 100

Sample Technique: non probability consecutive sampling

Sample Selection:

- Inclusion Criteria:
 - Patients of 13 to 70 year coming in outpatient department 3 weeks after having surgery for vesicovaginal fistula by layered closure with graft repair at Isra University Hospital.
- Exclusion Criteria:
 - Repaired by abdominal route.
 - Uterovesical, urethra-vesical, vesicocervical, ureterovaginal fistulae.

- History of previous surgery of vesicovaginal repair.
- Repaired by peritoneal graft.

Data collection procedure: Data was collected by filling specified proforma by patients in outpatient department 3 weeks after having surgery for vesicovaginal fistula repair having surgery in Isra University Hospital after taking informed and written consent. An exclusion criterion was strictly followed to avoid confounding variables. After taking history and examination all subjects were divided in two groups on method of repair. The permission for this work has been taken from ethical committee of Isra University Hospital, and the expenses of patient with genitourinary fistulae were paid by Isra University Hospital and UNFPA. The surgery was carried out by one surgeon (i.e. supervisor who have experience of fistula surgery of 30 years) to decrease the chance of bias. The follow up visit was planned after 3 weeks of surgery. All women was questioned for recurrence of continuous urinary leakage and that without such symptoms proved by absence of leakage on methylene blue dye test was labeled as 'success'

Success: success was labeled after 3 weeks of surgery Patients came without the complain of incontinence proved by absence of leakage by methylene blue dye test was labeled as 'successful outcome'

Data analysis procedure: Data was analyzed by using SPSS version 17.0. The mean and standard deviation with standard error of means signed as +SD were calculated for numerical variables like age and size of fistulae, parity. The frequency, proportion for categorical variables like socioeconomic status, causes of fistulae and type of procedure, type of graft and outcome of surgery was work out.

RESULTS

A total of 100 patients after having surgery for vesicovaginal fistula by layered closure with graft repair was included in this study. Age distribution of the patients is presented in figure 2. Most of the patients were 51 to 70 years of age as presented in figure 2. The average age of the patients was 35.2±11.55 years. Similarly mean fistula and parity is also given in table 1. Regarding parity distribution, 20% women had primi parity, 58% had multi parity and 22% had grant multi parity . Supra trigonal site was observed in 33% cases, 55% were trigonal and 12% were infra trigonal site . Similarly most of the type of graft was omentum.

Table 1: Baseline characteristics of females (n = 100)

Age (years)	35.12±11.55
Size of fistula ¹⁰	1.86±1.48
Parity	2.78±1.6
Primiparous	20 (20%)
Multiparous	58 (58%)
Grand multiparous	22 (22%)
Site	
Supratrigonal	33
Trigonal	55
Infratrigonal	12
Type of graft	
Martius	30
Omentum	59
Peritoneum	11

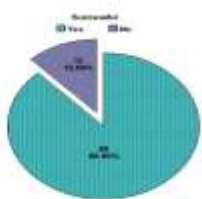


Fig 1: Frequency of success in surgery on vesico-vaginal fistulae by layered closure with graft repair procedures

Frequency of success in surgery on vesic-ovaginal fistulae by layered closure with graft repair procedures was observed in 88% cases as shown in figure 1. Rate of success in sugeryon vesic-ovaginal fistulae was not significant among different age groups (p=0.29) as shown in table 1. With respect to parity, success rate of surgery was above 85% in all type of parity groups and insignificant difference was observed (p=.93) as presented in table 3. Similarly success rate of surgery was also observed with respect to site, size, type of graft and found rate of success was above 80% but difference was not significant between different site, size, different graft.

Table 2: Comparison of successful surgery in different effect modifiers

	SUCCESS		Total	p-value
	Yes	NO		
Age				
≤ 20 Years	8(80%)	2(20%)	10	0.29
21 to 30 Years	31(96.9%)	1(3.1%)	32	
31 to 40 Years	24(82.8%)	5(17.2%)	29	
41 to 50 Years	12(80%)	3(20%)	15	
51 to 60 Years	13(92.9%)	1(7.1%)	14	
Parity				
Primi Para	18(90%)	2(10%)	20	0.93
Multi parity	51(87.9%)	7(12.1%)	58	
Grant Multi parity	19(86.4%)	3(13.6%)	22	
Site				
Supratrigonal	28(84.8%)	5(15.2%)	33	0.37
Trigonal	48(87.3%)	7(12.7%)	55	
Infratrigonal	12(100%)	0(0%)	12	
Size of fistula				
≤ 1 cm	46(92%)	4(8%)	50	0.103
2 to 4 cm	32(80%)	8(20%)	40	
>4 cm	10(100%)	0(0%)	10	
Type of GRAFT				
Martius	27(90%)	3(10%)	30	0.33
Omentum	50(84.7%)	9(15.3%)	59	
Peritoneum	11(100%)	0(0%)	11	

DISCUSSION

Majority of the VVF in developed countries results from iatrogenic injury, the most common reason is hysterectomy. Other less common causes are radiation necrosis, obstetric trauma, local extension of malignancy, & pelvic trauma. In developing countries, the prolonged obstructed labour is the most common reason for VVF. The key to successful repair of VVF lies in the classic principles defined by Couvelaire in 1953, "good visualization, good dissection, good approximation of the margins and good urine drainage."¹¹⁻¹³

In our study out of 100, most of the patients were 51 to 70 years of age The average age of the patients was 35.2±11.55 years. This is similar to the data of study by Mir Alam Jan et al in which 32 patients with VVF were enrolled and the mean age was 35±07 years. The location of fistula in our study was 33% cases were Supra trigonal , 55% cases were trigonal and 12% were infra trigonal site. In their study Mir Alam reported similar data regarding site of fistula as supratrigona 34.38 %, trigonal 18 (56.25 %), mixed 3 (9.37 %).¹⁴

Surgical repair for vesicovaginal fistula can be done via vaginal or abdominal route. The choice of procedure depends on the fistula location, presence or absence of vaginal stenosis and experience of the surgeon. Transvaginal repairs were introduced in an effort to decrease operative morbidity. In our study we excluded the patients repaired by abdominal route. Our success rate was 88% which supports the results from one local study done by sobiaMazhar et al who stated that out of 24 patients, 21 VVF repair was performed through vaginal route with a success rate of 83.3%.In international studies success rates ranging from 82-94% have been reported for the transvaginal approach.¹⁵⁻¹⁹

Davis and Mirands described successful closure of vesicovaginal fistulas by bladder drainage alone, although it generally true that some form of surgical repair is necessary for

successful closure of vesicovaginal fistulae. The reported success rate from a Brazilian study of 80 women with VVF repaired with bladder mucosal grafts over a period of 15 years was 96.3% with no late failures. These promising figures are supported by two smaller studies with success rates of 100% and 93%. In our study frequency of success in surgery on vesicovaginal fistulae by layered closed with graft repair procedures was observed in 88% which compares favourably with these.²⁰⁻²⁷

CONCLUSION

The success rate of VVF repair by layered closed with graft repair procedures is found to be 88%. If the functional capacity of the healthcare infra-structure is upgraded, then the risk of obstetric urogenital fistula and maternal mortality can be reduced. It is also very important to improve the awareness regarding VVF and more gynecologists must be trained to manage this condition.

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