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Original Research Article

ASSESSMENT OF OUTCOME OF THE REPAIR OF VESICO VAGINAL FISTULA

HASSAN S[*1], AKHTAR M[2], AFZAL U[3]

[1]*Department of Nephrology & Urology, Dialysis & Renal Transplantation unit, Bahawal Victoria hospital (BVH), Quaid-e-Azam Medical College (QAMC) Bahawalpur, Pakistan*
[2]*Department of Urology, Multan Medical and Dental College (MMDC), Multan, Pakistan*
[3]*Department of Urology, Unit of Kidney Transplant Surgery, Shaikh Zayed Hospital Lahore, Pakistan*
**Correspondence author email address: drsarfraz72@gmail.com*

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Abstract: *The retrospective study was conducted in the Urology & Gynecology Department from January 2022 to January 2023 to ascertain the outcomes of VVF repair in the local population. The study was conducted on a total of 20 patients. Reno ureteric configuration in all patients was documented using intravenous urogram (IUV) renal ultrasonography. A cystogram with lateral and anteroposterior views was taken. Perioperative details were recorded, including approach (vaginal or abdominal) and interposition flap (martius flap /omentum/ local peritoneum). The procedure was successful if the patient reported continence. 6 (30%) patients had complex fistulas, and 14 (70%) had simple fistulas. In the Open technique, 13/16 (81.25%) patients had successful VVF repair, while in the laparoscopic group, 4/4 (100%) had the successful group. The average blood loss during the laparoscopic technique was 100 ml, and for open repair, 600 ml. The operative time for the laparoscopic technique was 205 minutes, and for the open technique, it was 150 minutes. The follow-up period ranged from 2 to 25 months. 3 of the 16 patients undergoing open repair had fistula recurrence; the laparoscopic group did not report any recurrence. The mean duration of hospital stay for open and laparoscopic techniques was 24 days and 10 days, respectively. Surgical VVF repair provides a definitive cure. Complex fistulas are at an increased risk of failed repair. Primary repair has the highest success rate. The outcome depends upon case selection and principles of repair.*

Keywords: Vesico Vaginal Fistula, Open Repair, Laparoscopic Repair

Introduction

Vesico veginal fistula (VVF) is a common urinary tract disorder. It has variable etiology across the world. In developing countries, obstructed and prolonged labour is the leading cause of VVF, while in developed countries, VVF is mainly an iatrogenic complication of different procedures (El-Azab et al., 2019). In obstetrics, its incidence ranges from 1-2 cases per 1000 deliveries (Pope and Beddow, 2020). Iatrogenic VVF is most commonly caused by hysterectomy, associated with intraoperative bladder lesions. A study reported a 91% prevalence rate of VVF due to hysterectomy (Körner et al., 2020). Such VVF is commonly found in the intra-ureteric ridge and anterior vaginal wall(Luo and Shen, 2019). About 3%-5% of VVF occur due to locally advanced endometrial, vaginal, or cervical cancer (Medlen and Barbier, 2022).

Other frequent causes include trauma and radiotherapy. Rarely has it been associated with vigorous sexual activity (Lee and Zimmern, 2019) and illegal abortion (Jadav and Manjuprasad, 2019). A study reported an association between primary lymphoma of the urinary bladder and VVF (Bhutani et al., 2020). VVF results in urinary incontinence, which has a psychological and physical impact in the form of bladder and vaginal infection, undesirable odor, continual wetness, and decreased quality of life. Despite technological advancement, repair of vesico vaginal fistula remains challenging. A study suggested that its success rate is associated with its etiology, size, site, and previous unsuccessful attempts at its repair (Osman et al., 2021). Various author reports presenting the experience of VVF repair are available (Bhat and Kumar, 2022; Tozzi et al., 2023). This study aims to ascertain the outcomes of VVF repair in the local population.

Methodology

The retrospective study was conducted in Urology & Gynecology Department from January 2022 to January 2023. The study included patients who were treated for VVF. Patients with co-existent fistulae (vesicouterine, ureterovaginal, and urethra vaginal) were excluded. Informed consent of the participants

was taken. The ethical board of the hospital approved the study.

Data including patient history, age, symptom duration, parity, underlying event (Gynecological or obstetric), number, size, and size of fistula, stenosis of the vagina, and marginal scarring were recorded. Reno's ureteric configuration was documented using intravenous urogram (IUV) renal ultrasonography. A cystogram with lateral and anteroposterior views was taken. Undetected fistulae were detected through three gauze tests. Biochemical profile and cystoscopic data of all patients were recorded. VVF was 'high' when the fistulous opening was above inter ureteric ridge and 'low' when below it. Perioperative details were recorded, including approach (vaginal or abdominal) and interposition flap (martius flap /omentum/ local peritoneum). Details regarding the use of bilateral ureteric catheters and the duration of urethral catheter drainage were recorded. The procedure was considered successful if the patient reported continence. The discharge date was recorded. Data were presented as proportions and percentages. Statistical tests were not used.

Results

The study was conducted on a total of 20 patients. The mean age of the participants was 40.9 years. The duration of symptoms varied from days to months. 6 (30%) patients had complex fistulas, and 14 (70%) had simple fistulas. Five fistulas were trigonal, and 15 were supraregional. 2 (10%) patients had a recurrent fistula and a history of fistula repair. 15 of 20 patients (75%) had post-hysterectomy VVF. The demographic data of the participants are summarized in Table I. All patients had normal biochemical profiles. Intravenous urogram suggested no ureterovaginal fistula or upper tract dilatation in any patient. Two patients had a history of previous failed repairs, 1 of which again had unsuccessful repair. Surgical approaches for VVF are shown in Figure I. 16 (80%) patients underwent tissue interposition while the remaining had no interposition (Table II). Regarding auxiliary procedures, ureteric reimplantation was done in 1 patient, and bladder neck repair in 1 patient.

The average blood loss during the laparoscopic technique was 100 ml, and for open repair, 600 ml. The operative time for the laparoscopic technique was 205 minutes, and for the open technique, it was 150 minutes. The follow-up period ranged from 2 to 25 months. 3 of the 16 patients undergoing open repair had fistula recurrence. The laparoscopic group did not report any recurrence. The mean duration of hospital stay for the open and laparoscopic techniques was 24 days and 10 days, respectively.

In the Open technique, 13/16 (81.25%) patients had successful VVF repair, while in the laparoscopic group, 4/4 (100%) had a successful group. In 3 unsuccessful cases, uterine leaks were reported between 4-8 postoperative days. 1 of 3 cases had LSCS fistula for 15 years and had two prior unsuccessful surgeries. The patient had extensive fibrosis of the fistulous tract and was treated through a transperitoneal approach. The second case had post-hysterectomy VVF with extensive fibrosis and had symptoms for 4 years. The patient was treated through a transperitoneal approach. The third case had bull gore and rectal injury with extensive fibrosis and symptoms for 6 months. The patient was treated through a transperitoneal approach.

Table I Demographic characteristics of study participants

Variable	n(%)
Mean age (years)	40.9
Type of fistula	
Primary	18(90%)
Recurrent	2 (10%)
Nature of fistula	
Complex	6 (30%)
Simple	14 (70%)
Location of fistula	
Trigonal	5 (25%)
Supratrigonal	15 (75%)
Etiology	
Obstetric trauma	3
Vaginal hysterectomy	5
Abdominal hysterectomy	10
lower segment Caesarean section	1
Ballgore injury	1

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Table II Interpositional tissues used for VVF repair.

Inter positioned tissue	n(%)
No interposition	4 (20%)
Omental interposition	10 (50%)
Martius flap interposition	6 (20%)

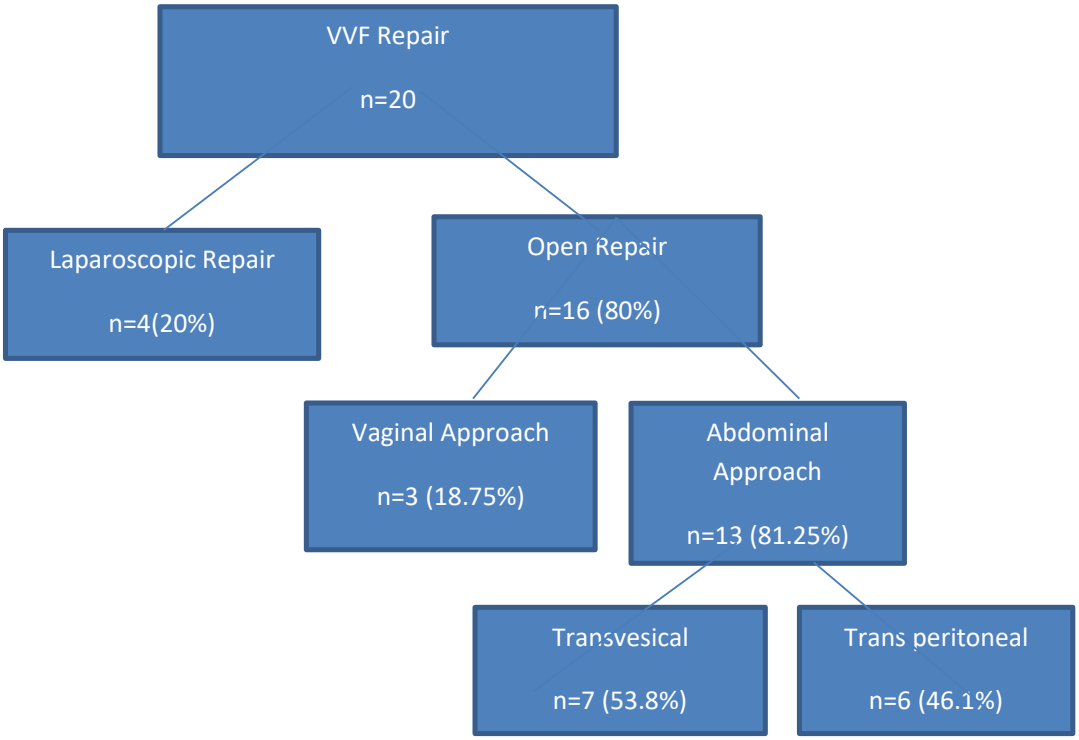

Figure I various surgical techniques for VVF repair.

Discussion

Vesicovaginal fistulas are a serious complication of gynecological and obstetric procedures. It is socially debilitating and has medicolegal implications. It is a major problem in underdeveloped countries with substandard obstetric and antenatal care (Barratt, 2022). In the current study, 75% of cases had post-hysterectomy VVF, which is similar to the finding of a previous study (Cheikhrouhou et al., 2023). However, some studies demonstrate that obstetric factors are a predominant cause of VVF (Chandna et al., 2020; Margules and Rovner, 2019). Differences in literature can be explained by different techniques, routes, and timing of genitourinary fistula repair. The fundamental principle of VVF repair, including adequate exposure, tension-free approximation, non-overlapping suture, good hemostasis, and adequate bladder drainage, can be achieved through abdominal and vaginal routes both. Surgical approaches used in the current study are comparable with previous studies (Margules and Rovner, 2019; Oyibo et al.).

Literature shows variable success rates, depending upon the type of technique and fistula. In the present study, the success rate of the open technique is 81.25%, and the laparoscopic technique is 100%, comparable to a previous study (Cheikhrouhou et al., 2023). The laparoscopic approach has principles the same as an abdominal approach. In the present study, 4 cases had successful VVF repair through the laparoscopic technique. A previous study conducted on 15 patients who underwent laparoscopic repair reported a 93% success rate, a mean length of hospital stay of 4 days, and a mean operative time of 3.0 hours (Han et al., 2023). However, extensive study is required to ascertain the cost-effectiveness of the laparoscopic approach. Unsuccessful repairs in the current study can be attributed to the long duration of symptoms and extensive fibrosis. Although repeated operations can be done, more prior unsuccessful procedures decrease the success rate. Thus, primary repair should aim at achieving the best outcome. The limitation of this current study is small sample size, larger study is recommended for detailed analysis.

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Conclusion

Surgical VVF repair provides the definitive cure. Complex fistulas are at an increased risk of failed repair. Primary repair has the highest success rate. The outcome depends upon case selection and principles of repair. Laparoscopic repair achieves desirable outcomes in suitable cases.

Conflict of interest

The authors declared an absence of conflict of interest.

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