



Case Series

Transvaginal Approach for Repair of Vesico Vaginal Fistula: An Effective Approach

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ABSTRACT

Vesico vaginal fistula (VVF) is a common problem affecting more in underdeveloped countries as compared to developed world. **Objective:** To describe that the transvaginal approach is an excellent route for the repair of vesico vaginal fistula without compromising on success rate. **Method:** It is a retrospective analysis of 64 cases operated in 10 years. All were operated through a transvaginal approach. Study included all supratrighonal, trighonal and infratrighonal fistulas as classified on cystoscopic findings bases. **Results:** Sixty-four patients with VVF were included in the study. The age of patients was from 20 to 58 years with a mean age of 44.6 years. According to age these were divided into four groups. The cause of VVF was abdominal hysterectomy in 57 (89.06%) patients while obstructive labour in 7 (10.96%) patients. The size of fistula was further categorized in three groups. The success rate was 87.5% (56 patients) in first attempt while the fistula of remaining 8 patients (12.5%) was successfully repaired in second attempt. Supra trighonal fistula was present in 54 (84.38%) patients while 10 (15.62%) patients had trighonal or infra trighonal fistula. **Conclusion:** By comparing different approaches, the vaginal approach had a comparable success rate with less morbidity. We suggest, for repair of VVF, the transvaginal approach should be a preferred approach for a vaginally accessible fistula over tranabdominal approach.

INTRODUCTION

Vesico vaginal fistula (VVF) is a common problem affecting more in underdeveloped countries as compared to developed world. The annual incidence of VVF is 50,000 to 100,000 cases and worldwide about two million women are facing this problem [1]. Earlier, in the developing world, the main cause of VVF was obstructed and prolonged labour. But due to improvement in anti-natal services, in most of the countries, the leading cause of fistula formation is iatrogenic injury during gynecological or obstetric surgery such as hysterectomy or caesarean section [2]. VVF put a very negative effect not only by foul odour and excoriation of vulva and vagina but also on mental health of patient. In underdeveloped countries like Pakistan there are multiple social issues which causes isolation of patient causing emotional and physical distress of the patient. For the

management of VVF there is no gold standard technique currently. Two approaches are used, traditionally, for the repair of fistula. It is repaired by either transvaginal or by transabdominal approach with a success rate of 50 to 100% [3]. For the repair of difficult or complicated VVF, Trendelenburg recommended a transabdominal approach. James Smith in mid nineteenth century described his transvaginal approach in which he used silver sutures and postoperative urinary bladder drainage properly. Beside this both transabdominal and transvaginal approaches shows equal success rate. But the transvaginal approach had less morbidity as compared to transabdominal approach such as avoiding laparotomy, minimal blood loss, rapid recovery resulting in short hospital stay [4-6]. Newer techniques for repair of VVF had emerged in recent past

such as laparoscopic and robotic approaches. But these approaches are cost effective, they require proper infrastructure and trained team. Moreover, like all endoscopic procedures, the learning curve is long [7]. As a result it causes extra financial burden on the poor economy of developing countries. In 1953 Couvelaire described the principles of a good and successful repair of VVF. He described a "good visual, good approximation of margins, good dissection and drainage" [8]. We are doing repair of VVF at our institute since last 20 years. Our objective of study is to describe transvaginal approach as an excellent approach for the repair of all types of fistula, where anterior vaginal wall is relax without compromising on the outcome of patient.

METHODS

It is a retrospective analysis of 64 patients presented with complaint of incontinence and were diagnosed as case of VVF in last 10 years that is from 1st January 2010 to 31st December 2020. All these patients were operated at Social Security Teaching Hospital Lahore and Sughra Shafi Medical Complex Narowal (Sahara Medical College, Narowal). Both simple and complicated (large as well as recurrent) fistulae were included in the study despite their position (Trigonal, Supratrigonal). The fistula which involve any of ureteric orifice, urethro vaginal fistula, urethro vaginal fistula, Vesico uterine fistula formed after pelvic radiotherapy were excluded from the study. Preoperative evaluation of all the patients were done by taking complete history, physical examination and all baseline as well as specific investigations including cystoscopy and vaginal speculum examination. The patients suffering with urinary tract infections were treated with appropriate antibiotics (according to urinary culture sensitivity report) before going for surgery. The surgery was done after at least six weeks later to fistula formation or failure of primary repair.

Operative Technique: Almost all of the patients were operated under spinal anaesthesia with a lithotomy position. All the aseptic measures were taken. In few (two) patients ureteric catheterization was done as the fistula was very close to ureteric orifice. According to size of fistula a Foley's catheter was passed through fistula tract and balloon was over inflated. A traction to catheter increased the visibility of fistula tract. A circumferential incision was made all around fistula edges through vagina. A good surgical plane was made between the wall of urinary bladder and anterior vaginal wall. The edges of fistula tract was freshened and haemostasis secured. The closure of fistula was done in three layers. Foley's catheter was removed before closing the layers. First layer was walls of urinary bladder which were closed as water tight closure with 4/0 Polyglyconal acid suture. Per urethra Foley's

catheter was passed and bladder was filled with normal saline to confirm any leakage of water. The second layer which consist of perivesical fascia was closed over the first layer with a 3/0 polyglyconal acid suture. Then the third layer, vaginal wall was closed after approximation in the same line with 3/0 Polyglyconal acid suture. A vaginal pack with Pyodine soaked role gauze was placed for 24 hours. Antibiotic cover with a continuous urinary bladder drainage was given for two weeks.

RESULTS

Sixty four patients with VVF were included in the study. The age of patients was from 20 to 58 years with a mean age of 44.6 years. According to age these were divided into four groups as mentioned in table 1. The cause of VVF was abdominal hysterectomy in 57 (89.06%) patients while obstructive labour in 7 (10.96%) patients. The size of fistula was further categorized in three groups as mentioned in table 2. The success rate was 87.5% (56 patients) in first attempt while the fistula of remaining 8 patients (12.5%) was successfully repaired in second attempt. Supra trigonal fistula was present in 54 (84.38%) patients while 10 (15.62%) patients had trigonal or infra trigonal fistula. There was no significant blood loss per operatively or after surgery (significant means indication for blood transfusion). The recovery period passed smoothly without any major complication.

| Age Group (in years) | Number of Patients (n) | Percentage (%) |
|----------------------|------------------------|----------------|
| 20-30 | 4 | 6.25 |
| 31-40 | 12 | 18.75 |
| 41-50 | 28 | 43.75 |
| 50-60 | 20 | 31.25 |

Table 1: Age groups along with number of patients

| Size of Fistula (in cm) | Number of Patients (n) | Percentage (%) |
|-------------------------|------------------------|----------------|
| < 1 | 25 | 39.06 |
| 1-2 | 35 | 64.69 |
| > 2 | 4 | 6.25 |

Table 2: Groups according to size of fistula and number of patients

DISCUSSION

VVF is one of those diseases which not only affect the physical health of patient but also mental and emotional health. As a result the quality of life of the patient is disturbed. Due to socio-religious factors in developing countries, there is higher prevalence of obstetric fistula as compared to developed countries [9,10]. Now, in some of underdeveloped countries, due to serious initiative of stakeholders, the antenatal services are much improved

and statistics are near to developed countries. In our study only 10.96% (7 patients) had fistula due to obstructed labor. There are different surgical techniques and approaches are used for the repair of VVF but none of these approaches is considered "The best" [11-13]. The experience of a surgeon is very important in the selection of surgical techniques and approach. Although other factors such as site of fistula, number of fistula, previous surgical history and relaxation of vaginal wall are also considered before selection of surgical technique and approach [14]. A vaginal approach has minimum morbidity as compared to abdominal approach which make it preferable when we talk about choice of the patient. Abdominal approach is done through transvesically. In this the bladder is opened which results in increased chances of bladder spasm and discomfort post operatively. While on the other hand the vaginal approach has less tissue handling which results in a decreased use of analgesics, less chances of infection, early recovery with higher success rate, shorter hospital stay and lower cost of surgery as there is no requirement of any sophisticated equipment or specially trained staff as needed by laparoscopic or robotic surgeries [15]. We even operated 54 (84.38%) patients who had supra trigonal fistula through trans vaginal approach successfully. The repair of VVF remains a challenging job for surgeon. People had tried interposition of different tissue flaps or grafts to strengthen the repair. In vaginal approach the Martius flap is an excellent flap which can be compared with omental flap used in the transabdominal approach [16-18]. But we did not use any flap but simple repair in three layers and results are as good as flap repair but with less morbidity. There are a lot of discussions on potential problems during exposure of fistula through transvaginal approach. But we had seen all simple VVF can be repaired through vaginal approach regardless of its location. Rajamaheswari et al. also concluded that 3/4th supratrigonal VVF can be repaired through vaginal approach with a success rate equivalent to a transabdominal approach [19]. Regardless of surgical approach, age and time to surgery are the main factors that correlate with operative time and blood loss. This finding highlights the impact of aging and poorly estrogenized, atrophic tissues across various surgical domains and potentially postoperative outcomes [20]. There are multiple advantages of our technique, predominantly lesser morbidity and reoccurrence rate. By inserting Foleys catheter in fistula tract and with downwards traction, there is a good surgical exposure of urinary bladder, perivesical fascia and anterior vaginal wall. The improved visualization of these structured layers helps in the excision of scar tissue around fistula tract. With better control of hemostasis, the suturing is good and tension free. Even if we have to repeat the procedure, this

approach is better option.

CONCLUSION

By comparing different approaches, the vaginal approach had a comparable success rate with less morbidity. We suggest, for repair of the VVF, the transvaginal approach should be a preferred approach for a vaginally accessible fistula over the transabdominal approach.

REFERENCES

- [1] Ahmed S, Genadry R, Stanton C, Lalonde AB. Dead women walking: neglected millions with obstetric fistula. *Int J Gynaecol Obstet.* 2007, 99(1): S1-3 doi.org/10.1016/j.ijgo.2007.06.009.
- [2] Miller EA, Webster GD. Current management of vesicovaginal fistulae. *Curr Opin Urol.* 2001, 11(4): 417-21 doi.org/10.1097/00042307-200107000-00014.
- [3] Wong MJ, Wong K, Rezvan A, Tate A, Bhatia NN, Yazdany T. Urogenital fistula. *Female Pelvic Med Reconstr Surg.* 2012, 18(2): 71-8 doi.org/10.1097/SPV.0b013e318249bd20.
- [4] Blaivas JG, Heritz DM, Romanzi LJ. Early versus late repair of vesicovaginal fistulas: vaginal and abdominal approaches. *J Urol.* 1995, 153(4): 1110-2 [doi.org/10.1016/S0022-5347\(01\)67522-0](https://doi.org/10.1016/S0022-5347(01)67522-0).
- [5] Dupont MC, Raz S. Vaginal approach to vesicovaginal fistula repair. *Urology.* 1996 Jul; 48(1): 7-9 [doi.org/10.1016/S0090-4295\(96\)00078-7](https://doi.org/10.1016/S0090-4295(96)00078-7).
- [6] Sims JM. On the treatment of vesico-vaginal fistula. *Am J Med Sci.* 1852; 23: 59-82 doi.org/10.1097/00000441-185201000-00004.
- [7] Hemal AK, Kolla SB, Wadhwa P. Robotic reconstruction for recurrent supratrigonal vesicovaginal fistulas. *J Urol.* 2008, 180(3): 981-5 doi.org/10.1016/j.juro.2008.05.020.
- [8] Couvelaire R. [Reflections on a personal statistics of 136 vesicovaginal fistulas]. *J Urol Med Chir.* 1953; 59(3-4): 150-60.
- [9] Blaivas JG, Heritz DM, Romanzi LJ. Early versus late repair of vesicovaginal fistulas: vaginal and abdominal approaches. *J Urol.* 1995, 153(4): 1110-2 [doi.org/10.1016/S0022-5347\(01\)67522-0](https://doi.org/10.1016/S0022-5347(01)67522-0).
- [10] Dalela D, Goel A, Shakhwar SN, Singh KM. Vesical calculi with unrepaired vesicovaginal fistula: a clinical appraisal of an uncommon association. *J Urol.* 2003, 170(6): 2206-8. doi.org/10.1097/01.ju.0000095503.76155.30.
- [11] Nesrallah LJ, Srougi M, Gittes RF. The O'Connor technique: the gold standard for supratrigonal vesicovaginal fistula repair [PubMed]. *J Urol.* 1999, 161(2): 566-8. [doi.org/10.1016/S0022-5347\(01\)61951-7](https://doi.org/10.1016/S0022-5347(01)61951-7).
- [12] Otsuka RA, Amaro JL, Tanaka MT, Epacagnan E,

- Mendes JB Jr, Kawano PR, et al. Laparoscopic repair of vesicovaginal fistula. *J Endourol.* 2008, 22(3): 525-7. doi.org/10.1089/end.2006.9846.
- [13] Sundaram BM, Kalidasan G, Hemal AK. Robotic repair of vesicovaginal fistula: case series of five patients. *Urology.* 2006, 67(5): 970-3. doi.org/10.1016/j.urology.2005.11.014.
- [14] Rovner ES (Wein J, Kavoussi LR, Novick AC, Partin AW, Peters CA, editors). "Urinary tract fistula," in *Campbell-Walsh Urology*. 9th ed. Philadelphia, Pa, USA: Saunders; 2007:2323-40.
- [15] Frohmüller H, Hofmockel G. [Transvaginal closure of vesicovaginal fistulas]. *Urologe A.* 1998, 37(1): 70-4 doi.org/10.1007/s001200050151.
- [16] Hodges AM. The Mitrofanoff urinary diversion for complex vesicovaginal fistulae: experience from Uganda. *BJU Int.* 1999, 84(4): 436-9 doi.org/10.1046/j.1464-410x.1999.00197.x.
- [17] Arrowsmith S, Hamlin EC, Wall LL. Obstructed labor injury complex: obstetric fistula formation and the multifaceted morbidity of maternal birth trauma in the developing world. *Obstet Gynecol Surv.* 1996, 51(9): 568-74 doi.org/10.1097/00006254-199609000-00024.
- [18] Raz S, Bregg KJ, Nitti VW, Sussman E. Transvaginal repair of vesicovaginal fistula using a peritoneal flap. *J Urol.* 1993, 150(1): 56-9 [doi.org/10.1016/S0022-5347\(17\):35396-X](https://doi.org/10.1016/S0022-5347(17):35396-X).
- [19] Rajamaheswari N, Chhikara AB, Seethalakshmi K, Bail A, Agarwal S. Trans-vaginal repair of gynecological supratrigonal vesicovaginal fistulae: A worthy option! *Urol Ann.* 2012, 4(3): 154-7 doi.org/10.4103/0974-7796.102660.
- [20] Shamout, S., Anderson, K., Baverstock, R., & Carlson, K. Evaluation of surgical approaches for vesicovaginal fistulae repair: the case for transvaginal repair as the gold standard. *International Urogynecology Journal*, 2021,32(9): 2429-2435 doi.org/10.1007/s00192-021-04869-w.