

Original Research Article

An outcome of the management of vesico-vaginal fistula: experience at KIMS, Hubli, Karnataka, India

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ABSTRACT

Background: Vesicovaginal Fistula (VVF), an abnormal communication between the urinary bladder and vagina, is one of the most distressing and embarrassing health problems for the females. The present retrospective study was done to analyse the demographic and aetiological pattern of vesicovaginal fistula and to ascertain the outcomes of its surgical management following different techniques of repair in a tertiary care centre.

Methods: Retrospective analysis of case records of 24 cases treated between January 2015 to July 2017 at Department of Urology KIMS, Hubli was done. Duration of symptoms, mechanism of injury, radiological and biochemical reports, cystoscopic recordings of patients and operative records were analysed.

Results: Mean age was 40.8 years (range 20-70 years). Fistula size varied from 0.5-5cm. location of the fistula was supratrighal in 20 cases (84%) and trighal in 4 cases (16%). Fitula was simple in 16 cases (68%) and complex in 8cases (32%). 21 cases were treated by open surgical method and laparoscopic technique in 3 cases. VVF repair was done by abdominal approach in 17 (67%) cases and by vaginal approach in 4 (33%) cases. Cases were followed for 2 -25 months. success rate of 100% (3 cases) who were operated laparoscopically and 17/21 (80.95%) in patients treated by open surgical method was noted. Failures in present study could be attributable to extensive fibrosis especially in prior failed repairs and in those with prolonged duration of symptoms.

Conclusions: In the present study complex fistulas had higher failure rate. The principles of fistula repair, experience of surgeon and case selection remain important determinants of outcome.

Keywords: Supratrighal fistula, Trighal fistula, VVF, Vesico-vaginal fistula

INTRODUCTION

Vesicovaginal fistula (VVF) is the most common acquired fistula of the urinary tract. The etiology differs in various parts of the world. Prolonged and obstructed labour was long considered to be the leading cause of vesicovaginal fistula (VVF) in women in developing countries. In developed countries iatrogenic VVF is a complication of many procedures, comprising up to 90% of VVF in those countries.¹ Other common causes of VVF are radiotherapy, pelvic malignancy and trauma.

Rare cases of VVF have been reported after illegal abortion.² and vigorous sexual activities.³ One rare case of VVF due to primary lymphoma of urinary bladder has been reported by Evans et al.⁴

The physical and psychological impact of constant urinary incontinence from a VVF can be overwhelming because of the burden of continual wetness, undesirable odors, vaginal and bladder infections, and related discomfort. Despite advances in the management, VVF repair remains technically challenging. The success rate

has been associated with the etiology of the fistula, site of the fistula, size of the fistula and number of previous failed attempts at repair.⁵

Authors report present experience with the treatment of vesicovaginal fistulae. Present study objective was to ascertain the results of vesicovaginal fistula repair.

METHODS

Retrospective analysis of case records of the patients admitted and treated for Vesico-vaginal fistula between January 2015 to July 2017 at department of urology KIMS, Hubli was done. The detailed history, regarding age, parity, duration of symptoms, antecedent event leading to fistula i.e. obstetric or Gynaecological were noted. Examination findings include the woman's general physical condition, size, site and number of fistula, amount of scarring of fistulous margins or stenosis of the vagina were noted.

The IVU or renal ultrasonography report was used to document the reno-ureteric configuration. An ascending cystogram with anteroposterior and lateral views was taken. The three-gauze test with methylene blue instilled in the bladder to detect fistulae undetected on the cystogram was also used. At the time of diagnosis all patients had basal biochemical profile (complete blood count, serum creatinine and urine analysis). The cystoscopic recordings, (regarding site and size of the fistula, relation of the fistula to the ureteric orifices) of all the patients was noted. The VVF was considered 'low' when the fistulous opening was below the inter-ureteric ridge, 'high' when above this line. The details of operative procedures were noted. The approach (abdominal or vaginal) was recorded and the use of an interposition flap (local peritoneum/omentum/martius flap) was noted.

In the evaluation of the patient records, the history any previous repair was documented. The duration of urethral catheter drainage and the use of bilateral ureteric catheters was also recorded. Details of post-operative course and the discharge data were reviewed and only those patients who were reported continent were considered as a success. Those cases in which coexistent fistulae (ureterovaginal, urethra-vaginal and vesico-uterine) present and those cases in which the data was insufficient in records, were excluded from study. The data was presented in percentages and proportions. No statistical test is used.

RESULTS

Total number of 24 cases were analysed in the present study. Mean age of the patients was 40.8 years (range from 20 -70 years). The duration of symptoms varies from few days to months. Sixteen (68%) patients had simple fistulas while eight (32%) had complex fistulas. The locations of these fistulas were supratrigonal (20) and

trigonal (4). Three (12.5%) had recurrent fistula with history previous surgery (fistula repair) in all cases. The most common etiology was post hysterectomy VVF i.e. 15 (62.5%) out of 24 patients, while the second most common cause was obstetric trauma. The demographic profile and duration of symptoms of all patients is given in Table 1 and Figure 1 respectively.

Table 1: Demographic profile of the patients.

Variables	No. of patients (n= 24)
Mean age (years)	40.8 (range 20-70)
Type of fistula	
Primary	21
Recurrent	3
Nature of fistula	
Simple fistula	16 (68%)
Complex fistula	8 (32%)
Location of fistula	
Trigonal	4 (16%)
Supratrigonal	20 (84%)
Mixed	0
Etiology	
Obstetric trauma	4
Post vaginal hysterectomy	4
Post abdominal hysterectomy	11
LSCS	4
Bullgore injury	01

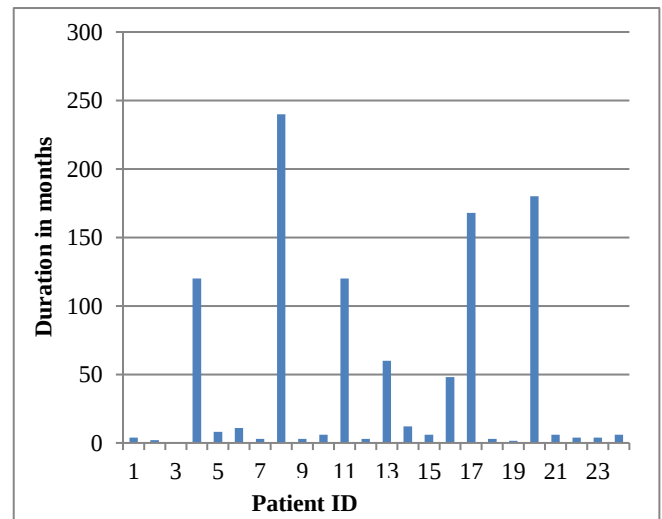


Figure 1: Duration of symptoms.

Biochemistry was normal in all patients except one patient, who had diabetes mellitus as co morbidity All patients underwent IVU- Suggested no associated ureterovaginal fistula as well as no evidence of upper tract dilatation. Prior failed repair of VVF was noted in 03 cases. One case was post LSCS VVF which had failed twice, one was post vaginal hysterectomy which had failed once, and One case following obstructed labour which had failed once. Among these, the first two again failed at our institute.

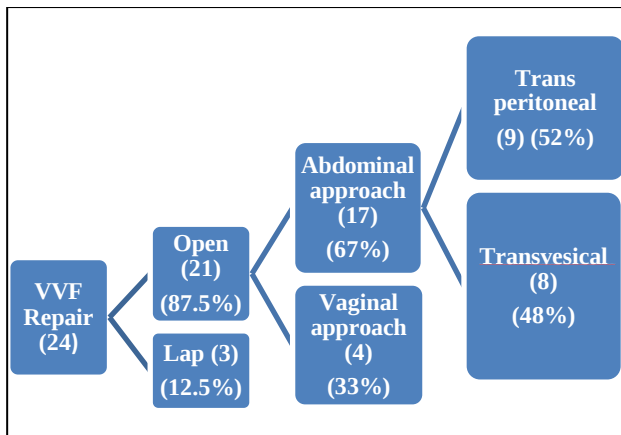


Figure 2: Various surgical approaches used for treating VVF.

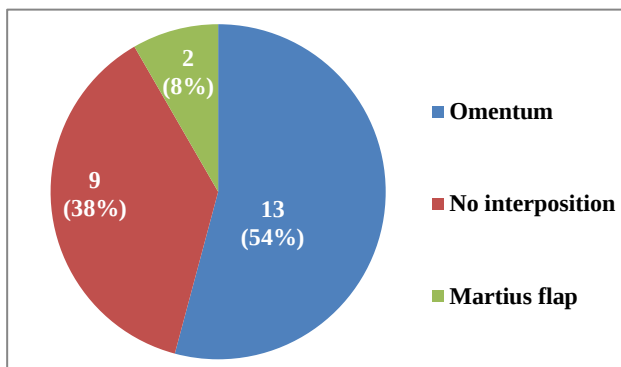


Figure 3: Various interpositional tissue used during VVF repair.

Various surgical approaches used for treating VVF patients as shown in Figure 2. Tissue interposition was done in 15 (62%) cases (omentum was interposed in 13 cases and Martius flap interposition was done in 2 cases) and no interposition was done in 9 (38%) cases as shown in the Figure 3.

Following auxillary procedures were done during management of VVF cases. Ureteric reimplantation in 2 cases, Bladder neck repair by vaginal route in 1 case, Colostomy for associated rectal injury in a case of bull gore injury and Urethro-vaginal fistula repair in 1 case.

Average blood loss in cases operated by open method was 600ml and 100ml in laparoscopic group. Operative time was 150 minutes in open method and 210 minutes in laparoscopic cases. Patients were followed up ranging from 2 to 25 months. Fistula recurrence was noted in 4/21 in open method and no recurrence in laparoscopic group.

Duration of hospital stay was 14 to 28 days (Mean - 23 days) in open case and 5 to 16 days (Mean - 9 days) in laparoscopic group. Post procedure, 2 patients had frequency, urgency and urge incontinence. on evaluation found to have small bladder capacity and were treated conservatively. Successful repair of vesico vaginal fistula

was done in 17/21 (80.95%) in open method and in 3/3 (100%) in laparoscopic group.

On analysis of failures (4 cases), Postoperative- urine leak was seen between 4th and 8th postoperative day. Among four patients, one was a case of post LSCS fistula which had failed twice. In this case, the duration of symptoms was 15 years. Fistula was supratrighonal and about 2x1cm in size. Extensive fibrosis was present around fistulous tract. Patient was treated by transabdominal transperitoneal approach and omentum was interposed. She had diabetes mellitus as associated comorbidity.

Second case was post vaginal hysterectomy VVF with one failed prior attempt. In this case symptoms were present for about 4 years and had multiple small fistulae which were supratrighonal in location with Extensive fibrosis around fistulous tract. This patient was treated by transabdominal, transperitoneal approach with omental interposition.

Third case was post obstructed labour VVF where in vaginal delivery was conducted after decapitation. In this case symptoms were present for about 20 years. Fistula was supratrighonal in position with extensive fibrosis around fistulous tract and about 4cm in size. This patient had reduced bladder capacity and was treated by transabdominal transperitoneal approach with omental interposition.

Fourth case of VVF was following bull gore injury with associated rectal injury. In this case duration of symptoms was 6 months. fistula was about 3.5cm in size and associated with bladder neck and urethral injury with extensive fibrosis around fistulous tract. Patient underwent transabdominal transperitoneal approach repair with omental interposition.

DISCUSSION

Vesicovaginal fistulas are among the most distressing complications of obstetric and gynecologic procedures. The condition is a socially debilitating problem with important medicolegal implications. In contrast to the western world, obstetric VVFs remain a major medical problem in many underdeveloped countries with a low standard of antenatal and obstetric care.⁶⁻⁸ In contrast to the postsurgical fistula, which is usually the result of more direct and localized trauma to otherwise healthy tissues, the obstetric fistula is the result of a “field injury” to a broad area that results in wider area of damage; thus producing a larger size of fistula.⁹

In the present study 66% fistulas were secondary to Gynaecological cause and 33% were obstetric fistulas, which is similar to the study's by Kam MH et al, but in other series VVF is predominantly secondary to obstetric causes, as shown Table 2.¹⁰

Table 2: Causes and location fistula comparing with other series.

Causes	Present study	Kam MH et al ¹⁰	Roy KK et al ¹¹	Kapoor et al ¹²
Gynaecological	63	70	73.9	40
Obstetric	33	25	21.7	60
Location	-	-	-	-
Supratrigonal	84	-	30.43	35
Trigonal	16	-	56.52	46
Mixed	-	-	13	19

Many differences in opinion exist as regards timing, route and technique of repair of genitourinary fistula. All obstetric fistula was repaired at least 3 months after delivery to allow edema and inflammation to subside in our series. The fundamental treatment principles for VVF repair (adequate exposure, tension-free approximation of the fistula edges, non-overlapping suture lines, good hemostasis, watertight closure and adequate postoperative bladder drainage) can be achieved through both, vaginal and abdominal route, depending upon the surgical experience. The surgical approaches used in the present were comparable with other series as shown in Table 3.

Table 3: Surgical approach and success rate in other series.

Author	No. of patients	Success %	Approach
Our series	24	83.33	Multiple
Eisen et al ¹³	29	90	Abdominal
Persky et al ¹⁴	7	86	Abdominal 6, vaginal 1
O'Connor JV ¹⁵	42	88	Abdominal
Mubeen RM et al ¹⁶	32	87.5	Multiple
Datta B et al ¹⁷	47	87.3	Abdominal 36, vaginal 11

Success rate reported in literature are variable, depending on type of fistula, technique, and above all surgical skills. In the present study the success rate of 83.3% (80.95% in open method and 100% in laparoscopic group) is comparable with previous studies (Kam MH et al).¹⁰ The success rate in other series is as shown in Table 3.

The laparoscopic approach has been used for VVF repair which follows the same principles as of standard abdominal approach, however, only limited numbers of patients are reported till date. In this study 3 cases were operated successfully by laparoscopic method. The series by Sotelo R et al, comprises 15 cases with mean operative time of 2.8h, mean hospital stay of three days and success rate of 93% at mean follow-up of 26.2 months.¹⁸ However, larger series are required to establish this approach and the cost-effectiveness and long learning curve are the limiting factors.

Failures in present study could be attributable to extensive fibrosis especially in prior failed repairs and in those with prolonged duration of symptoms. As in other series, the failures are common in the presence of extensive fibrosis in spite of interposition flaps. Although repeat operations are justified, the success rate decreases progressively with increasing number of previous unsuccessful procedures. Thus, the primary repair should be well planned to offer the woman the best chance of continence.¹¹

CONCLUSION

Genitourinary fistulas are not life threatening but are socially debilitating condition. Surgical repair is the definitive cure. The first repair has the highest success rate in VVF, and the best approach is probably the one in which the surgeon is most experienced. Complex fistulas had higher failure rate, the principles of fistula repair and case selection remain important determinants of outcome. Laparoscopic approach in selected cases and in experienced hands replicates the results of open surgery.

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