

# Management of Vesicovaginal Fistula

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**Objective:** To document our experience with management of Vesicovaginal Fistula

**Study Design:** Case Series Study

**Place and Duration:** Dept of Urology, DHQ hospital, Rawalpindi from 2005 to 2010

**Materials and Methods:** Nineteen cases of urogenital fistula developing after delivery, hysterectomy, and obstetric procedures were treated. Depending on site, size, etiology and associated anomalies, fistulas were repaired through vaginal or transabdominal route.

**Results:** The most common etiology was abdominal hysterectomy for benign conditions in 10 (53%) patients. Second most common cause was obstructed labor in 8 (42%) patients while cesarean section was the cause in 1 (5%) patient. Spontaneous closure occurred in 1 case of vesicovaginal fistula. Eighteen patients (95%) were managed surgically. In 15 (83%) patients fistulas were repaired through abdominal approach. Out of these 15 patients extraperitoneal transvesical technique was used in 11 while retrovesical (O'Connor) technique was used in 4 patients. Ureteric reimplantation required in two patients. In 3 (17%) patients fistula was repaired through vaginal approach. There was no mortality following operative procedures. Our success rate was 95%.

**Conclusion:** Any vesicovaginal fistulas irrespective of their size if easily accessible should be repaired transvaginally. High lying small fistula repaired through transvesical and large fistula through retrovesical approach without interposition of omentum or peritoneum gave excellent results.

**Key words.** Urinary fistula, Vesicovaginal fistula.

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## Introduction

Vesicovaginal fistulas (VVF) are perhaps the most distressing and feared complications of gynecologic and obstetric procedures.<sup>1</sup> "In an unequal world, these women are the most unequal among unequals".<sup>2</sup> Difficult labor is the most common reason for this most frequent type of fistula in our country like in other developing world. Trauma due to gynecological surgeries, chiefly hysterectomy, and the principal cause in developed countries is the second most common cause of vesicovaginal fistula in our country.

The objective of this study was to review our experience in the management of vesicovaginal fistula over a 5-year period (2005 to 2010), with an emphasis on causes, means of treatment, and outcome.

## Materials and Methods

A total of 19 cases of VVF were treated in our hospital between 2005 and 2010. These included all patients presenting to us during this period and were referred by primary and secondary healthcare centers as well as by private practitioners. Among the patients referred from

other centers, some had already undergone at least one failed surgical intervention for VVF. All patients were evaluated preoperatively by history, physical examination, serum creatinine, ultrasonography abdomen and intravenous urography (IVU). Cystoscopy was performed to determine the site, size and numbers of the fistulas and position of fistula in relation to the both ureteric orifices. Vaginal speculum examination was done to assess the vaginal capacity and vaginal opening of fistula. On the basis of site, accessibility and capacity of vagina, fistula repair was done through either the vaginal or abdominal route.

Vaginal repair. In the extended lithotomy position, after identification of fistula, a small-sized Foley catheter was passed through it in the bladder directly or after minimal dilatation of fistula tract in case of small fistula and balloon was inflated. Traction on Foley catheter helped to bring the fistula closer to the operating surgeon. An elliptical incision was given around the fistula. A generous plane between the bladder and vagina was developed at least 2 cm beyond the fistulous opening to get adequate vaginal flaps for layer-wise closure. Fistula was closed without excising it and its walls were included in the first layer of closure which provided a strong anchor of supporting tissue. The fistula repair

was done in two layers using 4/0 vicryl. First layer was created by approximating the fistula edges at the bladder wall. Second layer of repair involved the closure of vaginal flaps. Bladder was drained with per urethral catheter in all patients for 14 days postoperatively.

Abdominal repair: Fistula repair through the abdominal route was done for high lying fistula (usually postoperative), in patients having inadequate vaginal introitus/capacity, or in those patients where fistula was close to ureteric orifice that may require ureteric reimplantation. Transvesical extra peritoneal approach was used for small fistula (<1 cm) size. Bladder was opened in the midline. An elliptical incision was given around the fistula. A generous plane between the bladder and vagina was developed at least 2 cm beyond the fistulous opening to get adequate bladder flaps for layer-wise closure. Fistula was closed without excising it and its walls were included in the first layer of closure which provided a strong anchor of supporting tissue. The fistula repair was done in two layers using 4/0 vicryl. First layer was created by approximating the fistula edges at the vaginal wall. Second layer of repair involved the closure of bladder flaps. Bladder was closed in two layers. Drain was put in the retropubic space and bladder was drained with both suprapubic and urethral catheter for 14 days postoperatively.

For large fistula (>1 cm) size, abdominal route was used using the O'Connor technique.<sup>3</sup> Bladder was bivalved till the fistula site and then was dissected off the vagina. Bladder and vagina were closed separately and Suprapubic and per urethral catheter was placed for bladder drainage for 14 days postoperatively.

## Results

The leading cause of VVF was abdominal hysterectomy for benign conditions in 10 (53%) patients. Obstructed labor was the second most common cause in 8 patients (42%), while cesarean section was the cause in 1 (5%) patient (Table I). The age range of my patients was 17-46 years. One 17 years patient was unmarried who developed large fistula due to mishandled abortion. Time from development of VVF to presentation ranged from weeks to 15 years. All the patients were presented with continuous leakage of urine, patients with small fistula were having normal voiding as well. Diagnostic workup included vaginal examination and cystoscopy in all of the patients. Intravenous urography was done in all of the 19 patients in order to rule out any possible involvement of the ureters. The three-swab test was not required/done in any of the patients to confirm the diagnosis.

Initially, antibiotic therapy was started in all of the patients. One spontaneous closure of the fistula was noted with catheterization, the fistula size was probably small.

Eighteen patients (95%) were managed surgically. In 15

(83%) patients fistulas were repaired through abdominal approach. Out of these 15 patients extraperitoneal transvesical technique was used in 11 while retrovesical (O'Connor) technique was used in 4 patients. Ureteric reimplantation required in two patients. In 3 (17%) patients fistula was repaired through vaginal approach (Table II). There was no mortality following operative procedures. There was one failure with a success rate of 95%.

**Table I: Aetiology of vesicovaginal fistula**

| Aetiology                   | No of patients (%) |
|-----------------------------|--------------------|
| Transabdominal hysterectomy | 10 (53)            |
| Obstructed labor            | 08 (42)            |
| Cesarean section            | 01 (05)            |

**Table II. Surgical approach of vesicovaginal fistula**

| Surgical approach | No of patients (%) |
|-------------------|--------------------|
| Vaginal           | 03 (17)            |
| Abdominal         | 15 (83)            |
| Transvesical      | 11 (73)            |
| Retrovesical      | 04 (27)            |

## Discussion

A vesicovaginal fistula (VVF) is an abnormal opening between the vagina and the urinary bladder, through which urine continually leaks. Naturally, VVF makes the patients embarrassed that they are unable to control their bodily functions, that they are constantly soiled and wet, and that they smell. Thus, VVF have a profound effect on the patient's emotional well-being that results from the social distress because of persistent leakage of urine. This may be further complicated by recurring infections, infertility, and damage to the vaginal tissue that makes sexual activity impossible. In the developing world, the true incidence of VVFs is unknown, as many patients with this condition suffer in silence and isolation. In India and Pakistan, some 70% to 90% of women with fistula are abandoned or divorced.<sup>4</sup>

In the past, obstetric complications like prolonged obstructed labor, coupled with a lack of medical attention, were more common causes of VVF.<sup>5, 6</sup> In developed countries, with much better obstetric facilities, the causative factors of VVF are mostly associated with gynecologic and pelvic surgery, especially hysterectomy, occurring in 1 in 1800 hysterectomies.<sup>7</sup> However, prolonged labor still remains a major cause in many underdeveloped countries with a low standard of obstetric care.<sup>8</sup> However majority of our patients (58%) developed fistula post surgical as compared to patients (42%) developing fistula following obstructed labor. This could be explained by the fact that patients with post surgical fistula have got better opportunities to access for repair as compared to patients who developed

fistulas following obstructed labor. Similar findings were reported by other studies from Pakistan.<sup>9</sup> Other rare etiologies of VVF include illegal abortion, cesarean section, and congenital anomalies.<sup>10-12</sup>

Treatment of VVF is surrounded by a number of controversies. The first of those is when to perform the repair, early or late repair, which can be a difficult dilemma for the physician and the patient. Experienced surgeons are now operating as soon as the tissues are clean.<sup>13</sup> In our series, repair of fistula was done late, after 3 months. Classical opinion of repairing the VVF late, after 3 months, may be more applicable to the iatrogenic VVF, which forms a greater proportion of cases seen in the developed world and in our series as well. Moreover, several authors have reported comparable success with early and late surgical repair of VVF.<sup>14-16</sup> We found late repair to be highly effective in terms of closure and continence.

Controversies also exist regarding approach and technique of repair. For VVF, transvaginal or transabdominal approach depends on the location of the fistula, relation with the ureteric orifice. Many studies have claimed that the transvaginal approach is less invasive than the transabdominal procedure.<sup>17</sup> In our institute, we preferred the vaginal approach when the fistula was low and easily approached vaginally. Advantages include lesser blood loss, low complication rate, shorter hospital stay, and early resumption of routine activities. The transabdominal approach was selected in cases where the fistula was high lying and cannot be adequately visualized vaginally, was close to the ureteral orifice requiring ureteric reimplantation.

In spite of the management being better defined and standardized over the last decade the surgical approach has always been an issue of contention for the repair of VVF. 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.

In the present study 3 patients were managed transvaginally, these were the patients in whom traction by catheter placed through the fistula helped us in bringing the fistula closer to view thus making the vaginal approach quite convenient.

However, when the fistula is high lying or close to the ureteric orifices vaginal exposure of the fistula is suboptimal which may compromise the repair or endanger the ureters. In these circumstances, a transabdominal approach should be considered. We had 15 such cases of VVF, which were managed with this approach. In 11 of these patients transvesical repair was performed. We found this technique very quick, having minimum morbidity with excellent results,

particularly for small post surgical VVF. Others have reported this technique very useful as well.<sup>18, 19</sup> Only in 4 patients with large fistula classical O'Conner technique was used.

## Conclusion

Any vesicovaginal fistulas irrespective of their size if easily accessible should be repaired transvaginally. High lying small fistula repaired through transvesical and large fistula through retrovesical approach without interposition of omentum or peritoneum gave excellent results.

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