# Assessment of Various Treatment Modalities for the Management of Vesicular Vaginal Fistulae

**P. Narmada Devi[1], T. Jagdishwar[2]**


## ABSTRACT

**Introduction:** Vesico-vaginal fistula (VVF) is one of the big social and surgical problems faced by medical and gynaecological professionals for quite a long time. One of the major health problem presented in the underdeveloped countries is the prolonged labor further leading to obstetric vesico-vaginal fistula arising due to lower standard of obstetric care. A ten percent failure rate is represented in the treatment of recurrent fistulas. Hence, we analyzed the various treatment modalities available for the treatment of VVF.

**Material and methods:** The present study was carried in the department of gynaecology of the hospital and included all the patients who underwent repair of VVF by different treatment approaches. 17 patients underwent VVF repair by different approaches in one year observation period. Ethical approval was taken from the institutional ethical committee and written consent was obtained from each patient after explaining them in written the entire research protocol. Out of 17 cases, the cause of VVF in 9 cases was lower (uterine) segment Caesarean section (LSCS) for obstructed labour and 2 cases were due to sub-total hysterectomy for rupture uterus, which was due to the obstructed labour. Where fistula was high in position, the vaginal vault was selected again for abdominal approach. For vaginal approach, we selected small fistulae and fresh cases. All the data and the results were summarized and evaluated.

**Results:** Out of 17 patients, 10 (60%) were cured in first attempt, two were cured in second attempt, one patient was cured by conservative management who had bull-gore injury by keeping the continuous catheter for 3 weeks. They were treated by transvesical approach by removing the bladder calculi and repair of VVF. The cause for the calculus in these patients might be due to persistent urinary tract infection (UTI) or due to previous surgical materials like pieces of suture material.

**Conclusion:** Rectus abdominus muscle can be a successful interposition flap during repair of complex, recurrent VVF


**Keywords:** Abdominal, Obstetric, Vesico-Vaginal fistula,

## INTRODUCTION

One of the big social and surgical problems for quite a long time has been the vesico-vaginal fistula (VVF). In many of the underdeveloped countries, prolonged labor leading to obstetric VVF represent a major health and medical problem due to lower standard of obstetric care.[1] In developing countries, one of the most common causes of VVF is the abdominal hysterectomy accounting for 1 VVF in every 1800 hysterectomies.[2] After one to six weeks of gynaecologic or obstetric surgery, VVF can appear and within three months of repair of primary fistula, recurrent fistulas can occur.[3] Trans-vaginal repairs represent a lower success rate in comparison with trans-abdominal surgery depending upon the location and aetiology of the fistulas.[4] In 75 to 97 percent of the cases, repair of the VVFs that result from the operative injuries can be achieved.[5] Recurrent fistulas represent a failure rate of 10 percent. Regarding the time of surgery, type of surgical approach and need for adjuvant measures, still a lot of controversy exists.[5] Hence, we analyzed the various treatment modalities available for the treatment of VVF.

## MATERIAL AND METHODS

The present study was carried in the department of gynaecology of the hospital and included all the patients who underwent repair of VVF by different treatment approaches. 17 patients underwent VVF repair by different approaches in the one year observation period. Ethical approval was taken from the institutional ethical committee and written consent was obtained from each patient after explaining them in written the entire research protocol. Out of 17 cases, the cause of VVF in 9 cases was lower (uterine) segment Caesarean section (LSCS) for obstructed labour and 2 cases were due to sub-total hysterectomy for rupture uterus, which was due to the obstructed labour. So, out of 17 cases, 11 (65%) cases were directly or indirectly due to obstructed labour mostly in primigravida. The obstructed labour may be due to mal-presentation or cephalopelvic disproportion or lack of gynaecological operative injuries like vaginal or abdominal hysterectomy. In gynaecological operations, 3 cases were due to vaginal hysterectomy and 2 cases were due to abdominal hysterectomy. Only one case was traumatic fistula. Preoperative evaluation performed in each patient included a detailed history and thorough physical examination, urine analysis, cystoscopy and cystograms in selected patients. The endoscopic evaluation confirmed fistula in all the cases. Several factors are important for selecting patients for the abdominal or vaginal approach. In the patients, who had undergone prior unsuccessful fistula repair by vaginal approach and depending upon the size of fistula, we selected patients for vaginal or abdominal approach. In big fistulas and fistulae associated with vesical calculus, we selected them for transvesical approach. Where fistula was high in position, the vaginal vault was selected again for abdominal approach. For vaginal approach, we selected small fistulae and fresh cases.

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## STATISTICAL ANALYSIS

All the data and the results were summarized and evaluated using descriptive statistics like mean and percentages. Tables and graphs were made with the help of Microsoft Office 2007.

## RESULTS

Figure 1 shows the cause of VVF. Out of 17 patients, 10 (60%) were cured in first attempt, two were cured in second attempt, one patient was cured by conservative management who had bull-gore injury by keeping the continuous catheter for 3 weeks. Out of 17 cases, 11 cases of VVF arose to the obstructed labour while in 6 cases; non-obstructed labour formed the cause of VVF. Vaginal hysterectomy and abdominal hysterectomy formed the non-obstructed cause in3 and 2 cases respectively. Table 1 highlights the obstructive and non-obstructive causes of VVR. In 20 percent of the patients, who had vesical calculus associated with VVF, were diagnosed by kidney, ureter, bladder (KUB) approach and cystoscopy. Figure 2 highlights the attempts made for treating VVF. They were treated by transvesical approach by removing the bladder calculi and repair of VVF. The cause for the calculus in these patients might be due to persistent urinary tract infection (UTI) or due to previous surgical materials like pieces of suture material.

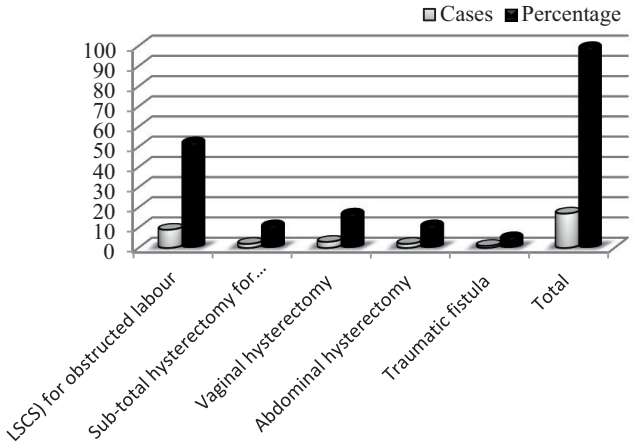


**Figure-1:** Cause of VVF

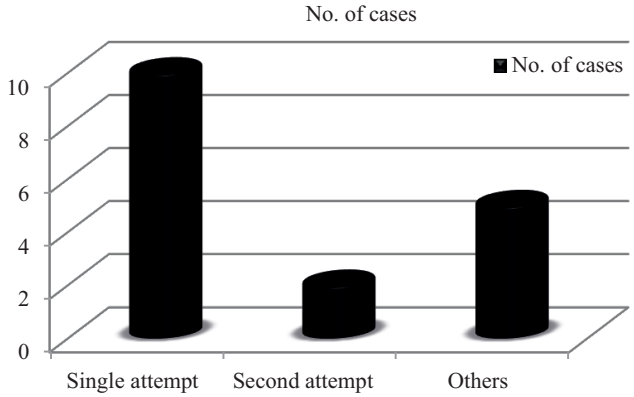


**Figure-2:** Attempts made for treating VVF

## DISCUSSION

Prolong obstructive labour can often result in VVF which forms one of the most worst complication of childbirth and poor obstetric care particularly in underdeveloped countries.[6] It commonly manifests clinically as continuous leakage of urine, excoriation of vulvas and vaginas, often rendering them social outcasts.[7,8] Principles defined by Couvelaire in 1953 form the basis and key to the success of the repair treatment of VVF. These principles include good visualization, good dissection, good approximation of the margins and good urine drainage.[9] Both vaginal and abdominal approaches can be used for giving these treatment principles a practical shape. Experience of the surgical team largely decides the choice of technique to be employed for the treatment of VVF. Transvaginal route is usually recommended for treating the simple trigonal and supratrigonal VVFs.[10]

In our series, total 12 cases were cured. Out of these, 8were trans-abdominal repair and 3 was trans-vaginal repair. In the present series of cases, 9 cases were cured in first attempt and 2 with second attempt while 5 failed due to various reasons. Rajamaheswari et al retrospectively analyzed the outcome of vaginal repair for supratrigonal VVF. They analyzed 134 cases of urinary fistulae that were treated from 2001 to 2014 and included 34 ureterovaginal and 98 lower urinary tract fistulae. As far as aetiology is concerned, 77.5 percent of the 49 supratrigonal VVF were of gynaecological origin. 43 and 6 cases were of primary and secondary VVF respectively. They observed that for the successful outcome for vaginal and abdominal repair was 86.7 percent and 100 percent respectively. From the result, they concluded that in majority of the cases, both vaginal approach and abdominal approach gives comparable equal success in cases of supratrigonal VVF.[11] Sundaram et al described a technique of robotic repair of VVF and presented their experience of five patients treated with such approach. They included 5 patients in their study who were diagnosed with posthysterectomy (n = 4) or postmyomectomy (n = 1) VVF. Conservative of all the patients was done initially with routine drainage followed by robotic repair of the VVF after three months time. They observed successful fistula repair in all the cases with mean operative time being a little more than 230 minutes and 70 mL of the mean estimated blood loss. From the results, they concluded that it is feasible to use robot-assisted VVF repair and further results in lower morbidity and a quicker recovery.[10] Melamud et al represented the first case report of robotic-assisted laparoscopic repair of a VVF. They took a total of 280 minutes to treat the vesicovaginal fistula after

| Mode of treatment | | Cases | Percentage |
|---|---|---|---|
| Obstructed labour | LSCS) for obstructed labour | 9 | 52.9 |
| | Sub-total hysterectomy for rupture uterus | 2 | 11.8 |
| Non-obstructed labour | Vaginal hysterectomy | 3 | 17.6 |
| | Abdominal hysterectomy | 2 | 11.8 |
| | Traumatic fistula | 1 | 5.9 |
| Total | | 17 | 100 |

**Table-1:** Showing the obstructive and non-obstructive causes of VVR

vaginal hysterectomy in a 44 years old woman. From the case, they concluded that due its technical difficulty, laparoscopic repair of vesicovaginal fistulas has not gained widespread popularity.[12] Reynolds et al reported their experience f using abdominus myofascial (RAM) interposition flap for VVF repair. They retrospectively analyzed the patients who underwent VVF repair with RAM interposition. They collected data primarily focusing on pre-operative patient's demographic and clinical details. In 5 patients, they used a RAM interposition flap for VVF repair. Radiotherapy was not given to any patients and all VVFs had developed postoperatively. In 3 and 2 cases respectively, VVF developed after total abdominal hysterectomy (TAH) or radical cystectomy respectively. Both the cases of VVF in which radical cystectomy was performed, cystectomy occurred in conjunction with orthotopic diversion. Before RAM interposition, five previous failed repairs were attempted only in 3 patients with post-TAH VVF. RAM interposition failed in 1 patient with a neo-bladder-vaginal fistula who had received adjuvant chemotherapy.[13] Shanmugham et al presented a case report of conservative management of VVF. Following hysterectomy, a 45 year old woman reported with continuous leakage of urine. Cystoscopy confirmed the clinical diagnosis of VVF. By the process of continuous bladder drainage, VVF was healed in 4 weeks time. Accordingly, complete healing of the smaller VVFs can be achieved by non-surgical treatment.[14] Llueca et al reported a case report in which VVF was treated with a laparoscopic approach. With the help of intraperitoneal laparoscopic approach, they treated VVF.[15] Tayade et al[16] presented a case report of treatment of VVF by o'connor technique. Through vigilant care and meticulous surgery, the incidence of genital fistulas can be reduced.[17]

## CONCLUSION

From the above results, the authors conclude that Rectus abdominus muscle can be a successful interposition flap during repair of complex, recurrent VVF. In our experience, this has been successful in most cases, particularly in younger patients with non-malignant processes.

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