

VESICO-VAGINAL FISTULA

ABDOMINAL REPAIR VERSUS REPAIR VIA VAGINAL ROUTE

ORIGINAL
PROF-1780

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ABSTRACT... Objective: To evaluate the outcome of Vesico-vaginal Fistulae (VVF) repair by abdominal and vaginal route. **Design:** Interventional / clinical trial. **Setting:** Department of Urology, Chandka Medical College Teaching Hospital and Almas Medical Centre Larkana. **Period:** Feb; 2005 to Nov; 2010. **Patients/Methods:** After routine clinical examination and investigation, patients having Vesico-vaginal Fistulae (VVF) were selected for repair. All patients had under gone examination those anesthesia (EUA) and cystoscopy. The patients having complex fistulae or associated with urethral, ureteric and colonic involvement or with preexisting malignant pelvic pathology were excluded from the study. Patients were divided in to 02 groups on the basis of the site of the fistula and the method of repair. Group-I comprised of those patients who had low type or uncomplicated fistulae and were operated by vaginal approach. Group-II consisted of those patients who had high type or large fistulae and were operated by abdominal approach. Postoperative follow up was carried out on weekly basis for 03 to 06 months. **Results:** Our study included 32 cases. Group-I and II comprised of 18 and 14 patients respectively. The mean age was 34 years (ranged from 22 to 45 years). The main cause of vesico-vaginal fistulae was obstetrical in 28(87.5%) and iatrogenic gynecological (hysterectomy) in 04 (12.5%) patients. No major difficulty was experienced except in 01(0.83%) case in group-1 who had a previous failure history of repair. The mean operative time was 95 minutes (range 80 to 125 minutes) & 145 minutes (range 110 to 175 minutes) in group-1 and group-2 respectively. Per-operative blood transfusion was required in 06 (33.33%) and 13 (93%) patients of group-1 and group-II respectively. Statistically significant difference was found between these two groups ($P < 0.05$). Postoperative complications like wound infection occurred in 01(7.15%) of group-1 and haematuria was present for few days in 04 (22.22%) and 05(35.5%) in group-1 and group-2 respectively. The mean hospital stay was 07 (range 5-10) days. Foleys catheter was removed at 02 week time in all cases. The success rate was achieved 15(83.33%) and in all 14 (100%) cases for group-1 and group-2 respectively and statistically no significant difference was found between two groups ($P=NS$). All the patients were followed up regularly except 03 (16.5%) and 05 (35.5%) patients of group-1 and group-II respectively. Long term complications like urinary stress incontinence was observed in 2 (11.1%) patients of group-I, where as small capacity bladder and stone formation was observed in 02(14.3%) of group-II cases. **Conclusions:** Birth trauma is still a major cause of vesico vaginal fistula in our region. Although, there is no significant difference in outcome of different technique but interposition of tissue between suture lines have a vital role to achieve a high success rate. Further more, best chance of success achieved with first attempt of repair. Strategic approach and proper training of medical and paramedical staff is recommended.

Key words: VVF, Abdominal repair, Vaginal repair.

INTRODUCTION

The vesico-vaginal fistulae (VVF) is one of the most

feared and devastating complication for females in obstetric and gynecological surgery. Since it can lead to

serious social embarrassment, it requires restoration.

Although, the description of fistula has been well mentioned as early as ancient times by Hippocrates but its exact incidence is yet not been known. The frequency, etiology and presentation of VVF differ from country to country and within various region of the same country¹. WHO estimated that some 21 million women are living with fistula with an additional of 50,000 - 100,000 new cases per year². Review of literature about published and unpublished data on vesico-vaginal fistula from Pakistan, Bangladesh, India, Nepal, Sri-Lanka and Thailand revealed that frequency of vesico-vaginal fistula varies from 0.5-3.7% of all admissions in gynecology ward³.

Post obstetric vesico-vaginal fistulas are relatively rare in developed countries but still common in emerging countries where modern obstetrical care is lacking. Typically this complication occurred due to difficult obstructed labor. The head of the child and the pubis of mother lead to prolonged and unrelieved pressure on the intervening tissues resulting into necrosis. Ultimately, the devitalized and sloughed areas leads to vesico-vaginal, vesico-uterine, urethro-vaginal or mixed type fistula. The clinical history of vesico-vaginal fistulae is usually straight forward. The woman presents with continuous day and night leaking of urine per vagina. The cases of vesico-vaginal fistulae can be differentiated clinically by uretero-vaginal fistula by that in former condition there is constant leakage of urine from vagina and normal voiding is negative whereas in later case there is normal voiding and leakage of urine per vagina occurs simultaneously⁴. The other type of fistulae like urethro-vaginal and vesico-uterine can also be differentiated easily. The pure urethro-vaginal fistulae may remain asymptomatic and produce leakage of urine during voiding, whereas patients with vesico-uterine fistulae may present with cyclical haematuria (menouria) without any urinary leakage⁵.

Historically, there have been 02 operative approaches to repair vesico-vaginal fistulae (VVF) by abdominal and vaginal route. Later on, considerable progress has been made with new suture materials and technique. In last

few decades, successful closure of vesico-vaginal fistula cases has been reported with various rather less invasive techniques. These include laparoscopic and robotic repair⁶, transurethral repair⁷, laser welding and even closure with fibrin glue⁵. However, these techniques have been used only for selected cases having small sized fistulae. With all the options of treatment, the ultimate aim of treatment is the restoration of anatomy. The objective of our study was to evaluate the outcome of VVF repair by abdominal and vaginal route in our backward set up.

Setting and duration

The study was conducted at Department of Urology, Chandka Medical College Teaching Hospital and Almas Medical Centre Larkana from Feb; 2005 to Nov; 2010.

Design

It was an interventional / clinical trial study.

PATIENTS/METHODS

The criterion for selection of the patients and screening workup included complete history, clinical examination and investigation like complete blood count and biochemistry, ultrasound, examination under anesthesia (EUA) and cystoscopy. The patients having complex fistulae or associated with urethral, ureteric and colonic involvement or with preexisting malignant pelvic pathology were excluded from the study.

The patients were divided into two groups on the basis of the site of the fistula and the method of repair.

Group-I comprised of those patients who had low type or uncomplicated fistulae and were operated by vaginal approach.

Group-II consisted of those patients who had high type or large fistulae and were operated by abdominal approach.

Group-III designed for those having mixed type or complicated fistulae or in difficult instance in which unsuccessful attempts leave a mass of chronically infected scar tissue complex fistula. These cases were

approached simultaneously by transvaginal-transvesical technique and were also excluded from this study.

TECHNIQUE OF REPAIR

A cystoscopic examination was carried out for the final inspection of the fistulous tracts and also to determine its proximity related to the ureteric orifices. The ureteric catheters were inserted in some cases where fistula was presented near by the ureter. These were placed in-situ during the surgery so as to identify and avoid the unexpected injury of the ureters.

All vaginal cases (Group-1) were attempted in the exaggerated dorsal lithotomy position with the thighs well flexed on abdomen. The patient was also kept under moderate degrees of Trendelenburg position. Both labia were sutured with respective thigh. This was found to give quite adequate exposure. Then, stay sutures were placed on either side of the fistulous tract. A foley's catheter of appropriate size was inserted through the fistula. The balloon of catheter was inflated and traction applied to tent up the fistulous area as an aid to dissection. Following circumcisions of the fistula, the vagina was widely separated from the bladder. All scar tissue and epithelial lining of the tract along with adjacent poorly nourished tissue was excised. The bladder was freed sufficiently from vagina for precise closure of tissue. The bladder was closed vertically with 2/0 vicryl suture where as the vagina was closed with mattress sutures of number 01 vicryl suture in horizontal direction.

All abdominal cases (Group-11) were attempted in supine position. A low midline abdominal incision was given. The bladder was entered extraperitoneally and dissected up to fistulous tract intraperitoneally. The bladder was widely separated from the vagina till free mobilization of both structures was achieved. All scar tissue were dissected and epithelial lining of the fistulous tract was excised. The vagina was closed with vicryl No. 01 interrupted sutures where as bladder was closed with interrupted sutures of No. 2/0 vicryl suture, exercising cares to avoid overlapping of the sutures lines. Omentum or peritoneal flap was interposed between two suture lines in all cases. Two drains extraperitoneally and intraperitoneally were left behind and the peritoneum and abdominal was closed in layers.

In both groups, the bladder was drain either 20F (02 ways) or 22F (03 ways) foley's catheter and at the end of procedure, 02 inch gauze, lubricated with antiseptic ointment was tightly packed into the vagina for a period of 48 to 72 hours. All patients were discharged to go home after 7-10 days postoperatively. Follow up was carried out on weekly basis for 03 to 06 months.

DATA ANALYSIS

All descriptive data was analyzed using SPSS version 10. The frequencies, percentages and correlation coefficients were calculated. The Chi-square test and Fisher test when appropriate were used to determine any statistical significant differences in the nominal data between the out come of two groups in our results. A, P value <0.05 was consider significant.

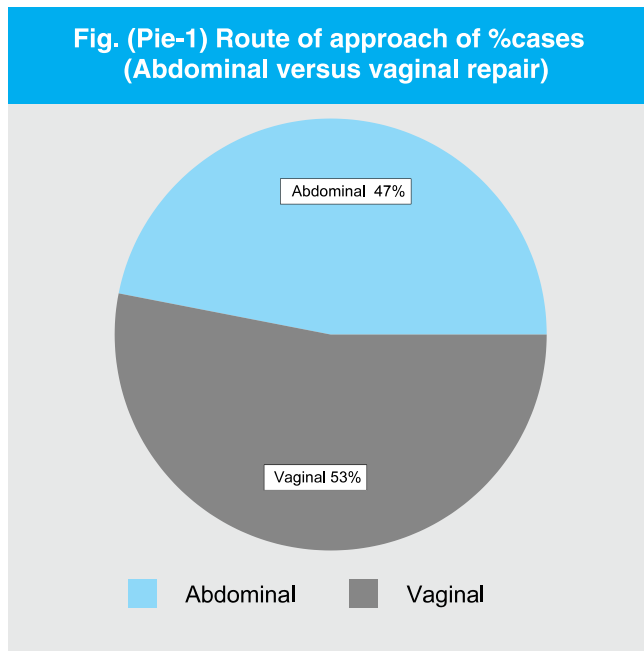
RESULTS

(Table I and II).

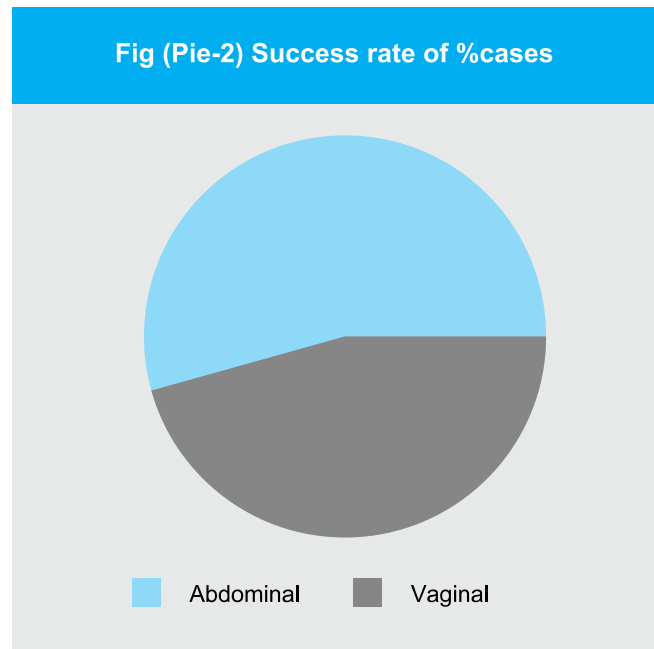
Our study included 32 cases and was operated from 2005 to 2010 (Bar; 01). Group-I and 02 comprised of 18 and 14 patients respectively (Pie; 01). The mean age was 34 years and ranged from 22 to 45 years (Bar; 02). The main cause of vesico-vaginal fistulae was obstetrical in 28(87.5%) and iatrogenic gynecological (hysterectomy) in 04 (12.5%) patients. Postoperative recovery was uneventful. The mean operative time was 95 minutes (range 80 to 125 minutes) & 145 minutes (range 110 to 175 minutes) in group-1 and group-2 respectively. Statistically significant difference was found between these two groups ($P < 0.05$). The mean hospitalization time was 07 days (range 5-10 days). The success rate was achieved in 15(83.33%) and in all 14 (100%) for group-1 and group-2 respectively (Pie; 02) and statistically, no significant difference was found between two groups ($P = NS$). No major difficulty was experienced except in 01(0.83%) case in group-1 who had a previous failure history of repair. Per-operative blood transfusion was required in 06 (33.33%) and 13 (93%) patients of group-1 and group-II respectively and statistically significant difference was found between these two groups ($P < 0.05$). Postoperative complications like wound infection occurred in 01(7.15%) of group- 1 and hematuria was present for few days in 04 (22.22%) and 05(35.5%) in group-1 and group-2 respectively. Statistically no significant difference was found ($P = NS$).

Table-I. Outcome of vesicovaginal fistula repair n; 32 (Abdominal versus vaginal repair)		
	Group-I (Transvaginal) n;18	Group-II (Trans abdominal) n;14
Main cause obstetrical Over all 28 (87.5%)	18 (100%)	10 (71.5%)
Success rate Over all 29 (90.5%)	15 (83.3%)	14 (100%)
Preoperative blood transfusion Haematuria	06 (33.3%)	13 (93%)
Wound infection	04 (22%)	05 (35%)
	-	01 (7%)
Stress incontinence	05 (27.8%)	1 (7%)
Long term complication	01 (5.3%)	02 (14%)

Table-II. Interposition of tissues in abdominal repair		
Tissue	No. of cases	%age
Omentum	10	71.5%
Peritoneum	04	28.5%



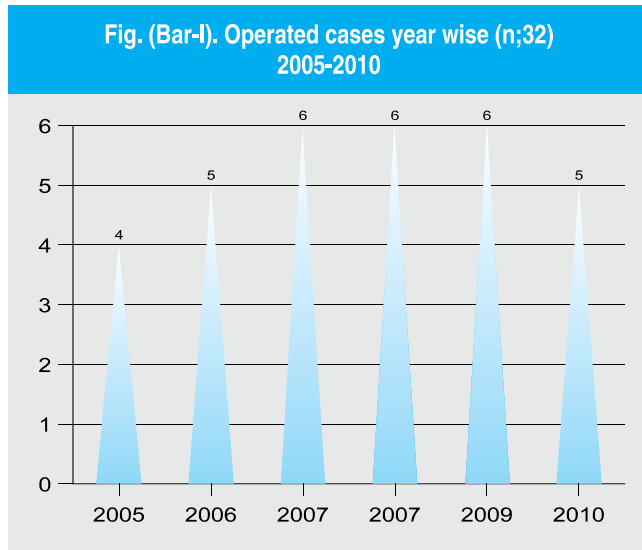
All the patients were followed up regularly except in 03 (16.5%) and 05 (35.5%) patients of Group-1 and Group-II respectively. Urinary stress incontinence was observed in 05 (27.7%) and 01 (7%) patients of group-I and group-II respectively. It subsided with conservative treatment within three to six months in all except 2 (11.1%) patients



of Group-I, where it persists for long term. Another long term complications observed in Group-II were small capacity bladder and stone formation in 02(14.3%) cases.

DISCUSSION

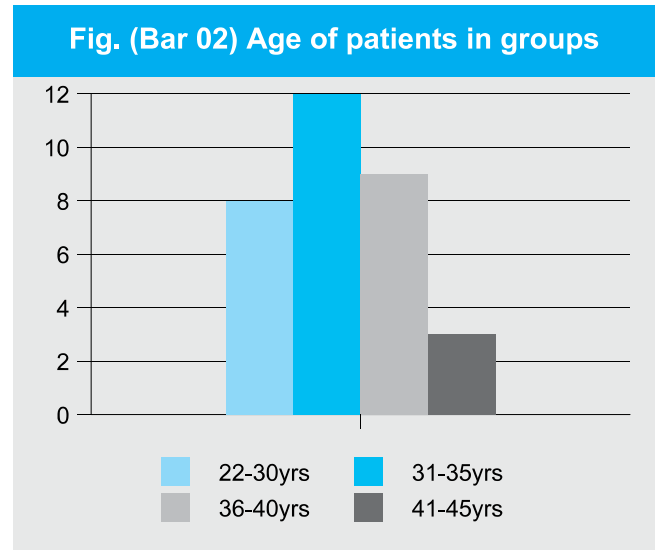
Since decades, the repair of vesico-vaginal fistulas remains an interesting but difficult challenge for the gynecologist and urologist. Even in modern surgical era, unfortunately, some patients undergo repeated operations without cure. The cure of these afflictions is to be expected best with the first operation. Generally, it is said that the vaginal route is first choice of the



gynecological surgeon where as urologists are used to be with abdominal approach. But fact of matter is that today, urologist plays not only a vital role in evaluation of almost all cases of VVF but is also familiar with both approaches. Since the majority of these surgical procedures are performed by gynecologists, it is only natural that the initial repair of a fistula is performed by these surgeons. No doubt that the morbidity and mortality are low and, in the uncomplicated patient, the results are usually successful. The gynecologist often refers the patient to the urologist for evaluation and subsequent repair when, the extent of fistula has enlarged and surrounding tissues are considerably scarred (complex fistula) or faced with a high-lying fistula and a scarred vagina which is less distensible and difficult to expose.

In the last 05 years, we had selected 32 cases of VVF for study. As, our aim was to achieve a successful repair, therefore we had least bothered about the type of technique and route of approach. We had selected a suitable case and then choose a method according to our cystoscopic findings and feasibility.

In our study, the main cause of vesico-vaginal fistulae was obstructed labor 87.5%. This is in accordance with other studies carried in Pakistan^{3,8-12}. It may be due to that about 70% population of our country lives in rural areas and 90% of the deliveries are conducted at home by traditional birth attendants (Dai's), lady health visitors or



quacks while 10% babies are only delivered in hospitals⁵. The lack of skilled obstetric care, inadequate transport system, late referrals and arrivals in hospitals, eventually all worsen to an obstructed labor and leads to complications and fistula formation.

Per-operative blood transfusion was required in 06 (33.33%) and 13 (93%) patients of group-1 and group-II respectively and statistically significant difference was found between these two groups ($P < 0.05$). These probably reflect the fact that dissection of tissue is quite more required in abdominal repair than vaginal repair. This is similar and in accordance to other studies¹⁰ but is in sharp contrast to Rafia B and et al⁹, who had not given transfusion in any of their case. It may be because of that, their series comprises of cases with vaginal repair only. Even then, we could not find any good reason and justification from their study.

The success of VVF has been regarded as closure of fistulae and patients becomes continent. In our series, it is 83.5% and 100% for Group-1 and Group-2 respectively. Statistically, no significant difference was found in respect of success rate between two groups ($P = NS$). The vaginal repair success rate claimed in different studies varies from 67% to 95%^{3,8-11} whereas, it is reported 85% to 100% with abdominal repair⁹⁻¹². Although, our success rate is comparable to other studies presented worldwide¹³⁻¹⁶ but is not similarly favorable with Nargis S et al¹² and Memon GU et al³, who

had achieved success rate 67% and 69% respectively with vaginal approach and is also contradicted with the study published by Rasool M et al¹, who reported 100% success rate with vaginal repair and 94.4% with abdominal repair. The low success rate of former study has been justified on their first attempt. Later on, it rose up to 90% with their subsequent second and third attempt. The high success rate of later study with vaginal repair may be because of that they had presented a small series of a small size fistulae located at trigone level only. We are much close to other authors' who also presented similar favorable results of 90% and 100% success with vaginal⁸⁻⁹ and abdominal approach¹¹⁻¹⁶ respectively. In our patients, we have also achieved high success rate because we limited ourselves with small to moderate size fistulae and followed the basic rules for fistula repair as described by Romics I, et al¹⁷. All adjuncts should be included to ensure successful closure of the fistula. Sufficient time was allocated for stabilization of local tissue and general health was improved before repair. In surgery, overlapping and tension on suture lines was avoided. Further more, we interposed either omentum or peritoneal flap between two suture lines in all of our cases in abdominal repair as suggested by Eilber KC et al¹⁸ for achieving high success rate. The causes of failure in 03 (16.5%) cases in our series of group-1 were that among them 02 cases were having recurrent fistula and in remaining 01 case, the fistula was rather large enough and also involved the urethra. Furthermore, despite the undoubted value, we did not interpose any tissue between the suture lines of vaginal repair.

In context to short and long term complications (Tab; I), no significant difference was found (P=NS) between both groups. These all are almost comparable and in accordance to other studies presented world wide^{9-12,15-16,18}. The main complication was postoperative hematuria in abdominal repair. In majority of cases bleeding was minor and did not pose any problem. It was controlled with irrigation. The factor responsible for this is large dissection related with bifurcation of urinary bladder. The stress incontinence was observed more in vaginal repair 05 (27.7%) cases then to abdominal repairs 01 (7%) cases. It subsided with conservative treatment within three to six months in all except 2 (11.1%) patients of

group-I, where it persists for long term. This may be due to that majority of fistula in vaginal cases were low lying and we might not be able to maintain the vesico-urethral angle during the repair. The other long term complications were only observed in 02(14.3%) cases of group-II. These were small capacity bladder and stone formation. It may be also associated and related with large dissection and mobilization of the urinary bladder. In this context, we have now modified it. Instead of the bifurcation of urinary bladder up to fistulae, we had opened it at two places. One small incision was given extraperitoneally at anterior surface of urinary bladder just like cystotomy, where as another incision has started intraperitoneally just proximal to fistula and dissected up to its distal end. The initial results are very much encouraging. It avoids unnecessary dissection of urinary bladder and minimized the abdominal repair related morbidity.

All the patients were keen and actively participated in follow up except 03 (16.5%) and 05 (35.5%) patients of group-1 and group-II respectively, who lost their long term follow up after getting their successful results. General lack of health awareness and need to travel long distance for only follow up are important factors for loss of follow up. It is conceivable that all of them having no long term complications, otherwise they certainly would have come back.

Recently, the laparoscopic approach has been used for VVF repair which follows the same principles as of standard abdominal approach¹⁹⁻²⁰. In this regards, only limited numbers of patients are still reported till date. Therefore, larger series are required to establish and recommendation of this technique. Furthermore, cost-effectiveness of this procedure remains an issue considering that VVF is a disease of developing countries.

CONCLUSIONS

It is concluded that obstructed labor is still a major cause of vesico-vaginal fistula in our region. Although, there is no significant difference in outcome of different technique but interposition of tissue between suture lines has a vital role to achieve a high success rate. First operation also has the best chance of success and surgeons should use

the approach with which they feel most comfortable to prevent failure disaster. Strategic approach and proper training of medical and paramedical staff is recommended. This is especially important for developing countries.

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