VESICOVAGINAL FISTULA REPAIR WITH AND WITHOUT INTERPOSED FLAP: IS THERE ANY DIFFERENCE?

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ABSTRACT

The abnormal communication between bladder and vagina (Vesicovaginal fistula VVF) is a devastating problem leading to continuous leakage of urine to the vaginal vault and resulting in significant morbidity for the affected female patients. Various techniques have been described for the management of VVF, but with significant recurrence rate of vesicovaginal fistulae. In our study we tried to evaluate the outcome of VVF repair with the use of omental flap interposition, and comparing it with VVF repair without flap. A prospective comparative trial conducted from July 2014 to May 2019, to evaluate the end result of transabdominal VVF repair (with or without interpositional flap) on 33 patients in Tikrit, mostly 3 to 6 months after their diagnosis. Excluding those patient with a complicated fistula and malignant fistula. The selected patients were randomized into two groups. Group A (18 patients) was repaired with using omental flap, whereas, group B (15 patients) was repaired without omental flap interposition. A total of 33 patients with VVF were included in our study. With a mean age of 36.6 years (range 23-43). The majority of VVF (66.5%) occurred as complications of abdominal hysterectomy, and obstructed labor is the second most common cause (account for about 31.5% of the cases). With fistula size ranging from 16 Fr to 30 Fr calibrated using Foley's catheter and finger calibration in larger fistula. The total reported success rate of the surgical repair in this study was 94%. In 18 patients were omentum flap interposition used; all of them except one (94.4%) were cured, while in 15 patients, repair done without flap, 13 (86.6%) patients were dry in the post-operative period. Though omentum flap interposition have good result in preventing recurrence of vesicovaginal fistulae, fistula repair without flap can give a high success, if meticulous dissection and suturing is done.

Keywords: vesicovaginal fistula, VVF, Incontinence.

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INTRODUCTION

Vesicovaginal fistulae (an abnormal communication extending between the urinary bladder and vagina), allows the continues involuntary leakage of urine into the vagina¹, persistent bad odors, excoriation of vulva and vagina that can lead to social avoidance, inability to perform some religious activities, and even divorce in some cases which has its psychological impact on the sufferer and family.² The occurrence of VVF successive to obstetrical causes in the industrialized nations is disclosed to be 3%-8%³ as juxtaposed to
84%-97% in the developing countries. In the neighborhood of 500,000 new cases of fistula event leads to obstetrical slash all over the globe per annum.

In the industrialized countries, the foremost creator of VVF is about to be gynecological surgical insult (mainly hysterectomies); howbeit, outlawed abortion, pelvic injuries, radiation necrosis, and major radical pelvic surgery are regular begets. Vesicovaginal Fistulae that occur from tissue pressure ischemia and subsequent necrosis during obstructed delivery (obstetric fistula) is clearly different from fistula surgical insults. The vesicovaginal fistula which has operative snags are time and again results from focal injuries, for instance, injury from clamp improperly placed during excision of the uterus. In consequence, surgical fistula is a tiny injury bordered by healthy tissue, while obstetric fistula is a wide injury with big defect, bordered by mangled, ischemic tissue. Fistula may be simple where tissues are healthy with good access, or complex where more tissue loss is associated, with impaired access, or one or both vents of ureters are involved.

Conservative therapy of the comprehend urethral catheter for continuous bladder drainage with or without an endoscopic fulguration; however, this bet has a very low rates succeed (7%-12.5%). Nearly all cases indispensably need surgical treatment with trans-abdominal, trans-vaginal, or in some times, a combined surgical approach. Though many techniques have been expounded, the seeking for an ideal procedure with
low morbid pitfalls and high rates of succeed still running [8]. In the bygone time, fistula between bladder and vagina was regarded as an unresolved problem, and the patient should adapted live with her tragedy. nevertheless with advancement in make use of surgery, availability of good quality sutures and new generations of antimicrobials fistula can be restored to health by surgical efforts. [9] Vesicovaginal fistula may be fixed up through a trans-vaginal or trans-abdominal (trans-vesical) stratagem. Each procedure has emotions that stand on the peculiar context of the fistula, and outstanding results may be achieved with both stratagem. Trans-abdominal line of action has conventionally been used for high (supra-trigonal) fistulae, while trans-vaginal manoeuvre has been customary used for low (infra-trigonal, neck of bladder, and urethral proximal part) fistulae [10]. In spite of that many considerations can affect the choose plan (like size, and site) the crucial factor is the surgeon familiarity with the procedure. So that, there is no best approach for all variety of fistulae, and the “most favorable” procedure to simple VVF is often the procedure that is gives a high success rate in the hands of each urosurgeon [11]. Fundamentals of fistula repair comprise of favorable tissue status, good vascularity and cleaness of infection, minimum or no inflammation, nor necrosis, as well as no malignant involvement. Tricks of complete tract removal, sutures that are free of tension, with watertight closure of multiple layer that involve vagina, bladder muscles, and mucosa separately. It should be tried to avoid of suture lines converge in the same plain, and ceaseless drainage of bladder in the postoperative period. [12] The interposition of a healthy flap of tissue with a good vascularity, between the vagina and the bladder during fistula repair can assist raise up of healing rate and to decrease recurrence rate in complex fistula (like post radiation, ischemic or obstetric, a large fistula), that associated with poor quality of tissue [10]. Variable outcome of abdominal vesicovaginal fistula repair with success rate of 100% and 63% with and without interposed flap of omentum, respectively. [13] Although some studies shows no difference regarding the outcome in both flap and flapless trials [14]. In our study, we reviewed the causes of VVF cases that referred to our center, and evaluate the end result of simple VVF repair using the trans-abdominal approach with or without interposed flap and compare them.

**MATERIAL AND METHODS**

Thirty three patients with VVF of variable sizes and causes were included in our study which was conducted from July 2014 to May 2019, to evaluate the end result of trans-abdominal VVF repair (with or without interposed flap). The included patients were randomized into two groups. Grou p A (18 patients) their fistula were repaired with omental flap interposition, whereas, group B (15 patients) was repaired without omental flap. A detailed urological and gynecological history and evaluation are done for every patient. Vaginal examination, cystoscopy, and intravenous or voiding cystourethrographies were performed for all patients to determine the location, size and number of fistulous tracts. All patients provided signed informed consent prior to surgery. Routine urine and blood analysis was performed, and any patients with suspicion of infection provided a urine specimen for culture assessment. Any existing urinary tract infection was treated, and it was verified that patients had sterile urine prior to surgery. Fistula repair was performed at least 3 months after the initial diagnosis of the disease. Those patients with vesicovaginal fistula due to radiation or malignancy, recurrent VVF and vesicovaginal fistula with bladder neck involvement are excluded from the study. Outcome of vesicovaginal fistula repair was measured in terms of repair success and failure. Patients were labeled having vesicovaginal repair failure, when there was persistent leakage of urine from vagina after
4 to 6 weeks of surgery with cystoscopic confirmation of the fistula. General anesthesia was used in all these patients. Subsequent to surgical field preparation and antibiotic prophylaxis with 3rd generation cephalosporins, a Pfannenstiel (and sometime lower abdominal midline) incision was made to approach the bladder. Bladder was vertically opened from the dome along the posterior wall up to fistula site (bivalved), and the fistula opening was identified and the diameter of the defect was measured and calibrated from the interior surface of the bladder. The calibration done by a catheter for small fistulae and the circumference of easily admitted finger to the fistula tract. Ureteric openings were identified, 5 Fr feeding tubes were passed in both ureters for easy identification and to avoid injury to the ureters. The bladder was dissected carefully and separated completely from vaginal wall up to 1-2 cm distal the fistula opening. The vaginal defect was transversely sutured with 2/0 Vicryl sutures, and bladder closed longitudinally in two layers with 2/0 Vicryl suture.

In group A, bladder and vagina was closed separately and omental flap interposition was made posterior to the bladder and anterior to the vaginal repair site. In group B, the bladder and vagina were closed separately without interposition of omentum.

Completion of the fistula repair was followed by removal of the ureteral catheters and closure of the bladder incision with an 18 F silicone Foley catheter left in place no suprapubic catheter drainage is used, and povidone iodine soaked gauze was placed in the vagina which removed after 24 hours post operatively. Perurethral catheter removed after 3 weeks postoperatively and subsequently all the patients assessed for vaginal urinary dribbling 4-6 weeks after removal of the catheter to evaluate the final outcome. The presence of vaginal urinary leak was regarded as failure of the repair procedure and documented later on by endoscopic identification of the recurrent fistula.

RESULTS

Transabdominal (transvesical) VVF repair performed for 33 female patients with a mean age of about 29.4 years, and a mean elapsed time between the diagnosis and the surgical repair of about 10.23 months. Three patients were had trigonal fistula, and 30 patients had supratrigonal fistula with a mean size of about 23.84 F. Twenty nine patients had VVF due to gynecologic causes (mainly after hysterectomy), while obstetric causes (obstructed labor and complicated cesarean) was responsible for 4 cases. Two patients have unsuccessful previous surgical attempts and second repair performed for them. The overall success rate for primary and secondary VVF repair was reported in this study to be 90.9%. Only one patient out of 18 patients with VVF repair and omental flap interposition had urine leak after catheter removal, while the remaining 17 cases were completely continent and cured (success rate 94.4%). Only 2 out of 15 patients (that undergone repair without flap inter position) presented with vaginal leak 2 to 5 days after catheter removal, due to recurrent VVF, that’s regarded as failure of the procedure (with a success rate of 86.6). No major postoperative surgical complication had been occurred. Wound infection happened in one patient, and three patients complaining of urgency and frequency that may be attributed to reduced bladder capacity.
Table 1: Success rate of VVF repair with and without interposed flap.

<table>
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<tr>
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<th>No. of patients</th>
<th>failed</th>
<th>Success rate</th>
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<tr>
<td>VVF repair with flab</td>
<td>18(54.5%)</td>
<td>1</td>
<td>94.9%</td>
</tr>
<tr>
<td>VVF repair without flab</td>
<td>15(45.5%)</td>
<td>2</td>
<td>86.6%</td>
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DISCUSSION

In the developing nations, about 5 million ladies sustained severe maternity complications each year, obstetric fistulae being one of the commonest problems that bring it the acme of the list, as was stated by World Health Organization (WHO) estimation. Also, it had been recorded a 2 million women are on waiting list for surgery worldwide, and nearly 500,000 new cases of fistula occur mostly in Africa and Asia due to obstetrical injury throughout the world annually. While in developed nations, gynecological surgery usually accounts for fistula.[15] Different surgical strategies (abdominal or vaginal approach) have been stated for the dealing with VVF, based on the size, site, and etiology or complexity of the fistulas, though no one has been regarded as the benchmark for management.[16] Even so repair of supratrigonal fistulas using the (O’Connor bivalve technique) was agreed by many surgeons to be one of the point of reference for the repair procedures, and the most customarily used in abdominal repair procedures for VVF nowadays. The most disputed matters of surgical correction of vesicovaginal fistula are (1) the timing of surgery (early versus delayed repair), and (2) surgical approaches (abdominal versus vaginal, with versus without flap interposition).[17] As most cases of VVF are supratrigonal and complex fistulae, so the trans-abdominal approach was adopted and undertaken in our study. We used this approach mostly due to strong believe that VVF should preferably be closed with a water tight, multiple layers without tension, as these are some principals to get the best outcome. Other golden steps includes wide dissection and mobilization, and excision of ischemic unhealthy tissues, with avoiding overlapping of suture lines. [18] The ideal timing for surgical repair is still controversial. A delayed closure (after 3-6 months)[29], versus early intervention.[20] In this study, we adopted the delayed repair with a time interval of not less than 3 months, this is based on the idea that delayed intervention ensures good blood supply and little local edema and acute inflammation in the area. In this series, we reported that all 17 out of 10 cases of VVF repaired with omental flap interposition were completely dry and happy with a success rate of 94.9%, and 86.6% success rate for those patients without flap interposition( as two patient continued to have urine leak after repair). Our result were relatively comparable with Evans and colleagues, who recorded 100% success rate with flap interposition, but they recorded less success rate (63%) without flap. Tariq M and colleagues, conducted a study to evaluated the outcome of vesicovaginal fistula repair with and without interposition of omental patch, where they had 96% success rate as compare to 84% respectively, these findings are also in agreement with the result of the current study so Upptey D and co-workers reported a lower (56%) success rate in VVF repaired without patch. On the other hand Nawaz H and coworkers, reported a lowersuccess rate (87.93%) for repair of VVF with the use of the patch.
CONCLUSION

Although trans-abdominal repair of vesicovaginal fistula with omental flap is safe and achieves excellent functional results with minimal or no disturbance, repair without flap can give a comparable results with a very good outcome.

ETHICAL CLEARANCE

The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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