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ORIGINAL ARTICLE

COMPARISON OF SUCCESSFUL OUTCOME OF FLAP VERSUS NO-FLAP IN O'CONOR & SOKOL TECHNIQUE FOR VESICOVAGINAL FISTULA REPAIR

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ABSTRACT

OBJECTIVE: To compare the successful outcome of flap versus no-flap in O'Conor & Sokol technique for simple vesicovaginal fistula (VVF) repair.

Methods: This quasi-experimental study was conducted in department of Urology, Institute of Kidney Diseases, Hayatabad Medical Complex Peshawar, Pakistan from March 2015 to December 2019. During this study period, 64 eligible patients, selected through non-probability convenient sampling technique were assigned to two Groups. Group A included 34 patients who underwent VVF repair through O'Conor & Sokol technique without interposition flap while Group B comprised 30 patients with VVF repair with interposition flap. Patient getting completely dry with no urinary incontinence at primary endpoint of 6 months was labelled as successful outcome. All the pre-operative, per-operative and post-operative data was collected on structured proforma and analyzed on SPSS version-21.

Results: The mean age of the patient was 33.8±7.8 years in group A and 35±6.3 years in group B. About 76.5% (n=26/34) patients in group A and 80% (n=24/30) patients in Group B developed VVF due to obstetrical trauma. Overall, O'Conor and Sokol technique of VVF repair was successful by curing urinary incontinence in 95.3% (n=61/64) patients. Successful outcome for O'Conor & Sokol technique was achieved in 94.1% (n=32/94) patients in Group A and 96% (n=29/30) patients in Group B, at 6 months of follow-up (p>0.05).

Conclusion: There is no significant difference between interposition flap and no-flap in outcome of simple VVF repair through O'Conor & Sokol technique. The decision of interposition can be individualized depending upon preference of surgeon.

KEY WORDS: Vesicovaginal Fistula (MeSH); Urinary Fistula (MeSH); Patient Outcome Assessment (MeSH); Genital Diseases, Female (MeSH); Obstetrical trauma (Non-MeSH)

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INTRODUCTION

Vesicovaginal fistula (VVF) is an extremely distressing and demoralizing disease of women. The earliest description of VVF repair can be traced in ancient Egyptian civilization when Professor Derry discovered VVF in mummified body of a Queen in 1928.[1] The magnitude of VVF is very huge. The World Health Organization (WHO) in its bulletin in 2015 has reported that 50000 to 100,000 women develop VVF per year.[2] The etiology of VVF is different for different parts of the world. It is different for the nations who practice modern obstetrical protocols versus nations who still believe in the saga of traditional birth attendants. Gynecological surgeries are the most common cause of VVF formation in developed countries while Obstetrical trauma in form of prolong obstructed labor is still the leading cause of VVF in Pakistan.[3]

Controversies still prevail in the management of VVF repair. These controversies include timing of the repair, route of repair, interposition grafts, excision of fistula tract etc. VVF repair pose a significant challenge to surgeon. Vigilant and proper diagnosis, followed by timely repair is essential to the successful management of VVF. A thorough understanding of the patho-physiology and anatomy of the fistula, potential factors that may compromise healing and experience in the fundamental principles of fistula repair are the vital tools of the fistula surgeon. The gynecologists usually prefer vaginal and Urologists favor abdominal repair of VVF. However, supra-trigonal fistula should be managed with transabdominal repair.[4]

The O'Conor and Sokol technique is established transabdominal approach in VVF repair.[5] The interposition flap is traditionally used in O'Conor repair of VVF. The objective of flap is to prevent the opposition of suture lines with a hope of increased strength and success to the repair. The issue of interposition flap is quite tricky as it all depends on the spot decision of operating surgeon depending upon the size, adhesions, and status of healthy tissues. Altaweel WM, et al. in their study favored the use of interposition flap with successful outcome,[6] while Wahab F et al. in their study reported that there is no significant difference between flap versus no-flap in final successful

TABLE I: ETIOLOGY OF VESICOVAGINAL FISTULA (VVF) IN PATIENTS UNDERGOING O'CONOR AND SOKOL REPAIR

Variable		Group-A (VVF repair without interposition flap) (n=34)	Group-B (VVF repair with interposition flap) (n=30)
Obstetrical trauma	Prolong Obstructed Labour	21 (61.8%)	20 (66.7%)
	Emergency Cesarean Section	2 (5.9%)	3 (10%)
	Rupture Uterus	2 (5.9%)	1 (3.3%)
	Post D& C	1 (2.9%)	0
Gynecological surgery		8 (23.5%)	6 (20%)

VVF: Vesicovaginal fistula

TABLE II: OUTCOME OF PATIENTS UNDERGOING O'CONOR AND SOKOL REPAIR OF VESICOVAGINAL FISTULA WITH AND WITHOUT INTERPOSITION

O'Conor and Sokol Repair of Vesicovaginal Fistula	Final Outcome		
	Successful	Failed	P value*
Group A: No interposition flap (n=34)	32 (94.1 %)	2 (5.9%)	0.38
Group B (with Interposition flap (n=30)	29 (96.7%)	01(3.3%)	
Total (n=64)	61 (95.3%)	03 (4.7%)	

* Fischer Exact test

outcome.[7] Moreover, the morbidity of using flaps was found higher in their study. The rationale of the present study was based upon research question that why there is so much disparity in existing literature upon use on interposition flap in VVF repair. We planned this study to compare the outcome of flap versus no-flap in O'Conor & Sokol technique for VVF repair in our setup. This study will lead to further research in management of VVF.

METHODS

This quasi-experimental study was conducted in Department of Urology at Institute of Kidney Diseases, Hayatabad Medical Complex Peshawar, Pakistan from March 2015 to December 2019. Study was approved by institutional research and ethical committee of Institute of Kidney Diseases.

All the patients admitted in the department of urology through the outpatient department (OPD) or emergency with primary diagnosis of supra-trigonal simple VVF due to obstetrical and iatrogenic gynecological procedures were eligible for our study. We excluded the complicated VVF, patients of VVF secondary to malignancy and radiation, ureterovaginal, ureterovaginal and recurrent fistula. Patients who underwent vaginal repair for VVF were also excluded from the study.

During the study period, 64 patients fulfilling the above-mentioned criteria were selected through non-probability convenient sampling technique. Informed consent was taken from all patients. A detailed history and thorough clinical examination was performed in all the patients. All 64 eligible patients were assigned to two groups. The Group "A" comprised 34 patients who underwent 'Conor and Sokol technique of abdominal repair of VVF without interposition flap. Group "B" comprised 30 patients who underwent the same technique of repair with interposition flap. The decision of interposition flap or no-flap was taken preoperatively according to the surgeon's preference.

All the patients were followed up until 6 months. Patients were assessed for successful outcome i.e. a patient becomes completely dry with no urinary incontinence at primary endpoint of 6 months.

All the preoperative, preoperative and post-operative data was collected on structured proforma and was analyzed on SPSS-21. Fisher exact test was used as test of significance for main outcome variable of successful outcome.

RESULTS

The mean age of the patient in Group A (n=34) was 33.8±7.8 years and in Group B (n=30) was 35±6.3 years. Majority of the patients in both of the groups (75%) were residents of rural areas. The mean parity in Group A was 3±2.1 and for Group B was 5±3. Thirteen patients (38.3%) in Group A and 12 (40%) patients in Group B had developed VVF after the birth of their first child.

About 76% (n=26/34) patients in group A and 80% (n=24/30) patients in Group B developed VVF due to obstetrical trauma, while the remaining patients had a history of gynecological surgery (Table I).

In Group A, about 20.5% (n=7/34) patients required concomitant abdominal surgery, including ureteric reimplantation in 17.6% (6/34) patients and Boari flap in 2.9% (n=1/34) patients. In Group B, 36.7% (n=11/30) patients had some sort of concomitant abdominal surgeries that included ureteric reimplantation in 23.3% (n=7/30) patients, Boari flap in 6.7% (n=2/30), Augmentation cytoplasty in 3.3% (n=1/30) and colostomy in 3.3% (n=1/30) patients.

Overall, O'Conor and Sokol technique of VVF repair was successful by curing urinary incontinence in 95.3% (n=61/64) patients (Table II). Successful outcome for O'Conor & Sokol technique was achieved in 94.1% (n=32/94) patients in Group A and 96% (n=29/30) patients in Group B, at 6 months of follow-up (p>0.05). The failure of the procedure was recorded in all patients within first week post operatively.

DISCUSSION

In this study, encouraging results of O'Conor and Sokol technique of VVF repair were observed regarding curing urinary incontinence. Successful outcome at 6 months of follow-up was

achieved in 94.1% patients undergoing VVF repair without interposition flap as compared to 96% patients operated for VVF repair with interposition flap.

VVF is an unpleasant and severely demoralizing injury among women mainly due to disabling childbirth injury[2] or complication of genital system injury after surgical operations resulting in incontinence. It is very unfortunate that young female are more predisposed to this distressing disease all over in the developing world.[8] VVF repair is a complex surgery and needs delicacy, experience and dedication. Transabdominal repair in form of O'Conor & Sokol technique is very successful in management of VVF repair. Although there was marginal improvement in inserting interposition flap in Group B of our study, it was not significant.

The strength of our study is that it is a comparative study of good follow up of 6 months, with aim to settle the controversy of beneficence of interposition flap. It is the first study in present setup with over all good sample size.

The mean ages of the patients in our study was 33.8±7.8 years in Group A and 35±6.3 years in Group B. That clearly states that these poor patients are affected in the peak of their fertile period. Although Suhail S, et al.[9] and Mumtaz R, et al[10] have reported the mean age of VVF by 22 years, data from WHO[2] reported the mean age of the patient for VVF as 35 years. The contributing factor is probably the cultural taboos encouraging marriages and early conception at young age.[3]

VVF unfortunately occurs in the poor and uneducated community. It occurs especially in women living in the remote rural areas of Pakistan. In our study, we found that 75% patients were residents of rural areas as reported by other studies.[3,5,11] This sad reflection of low socio economical aspect is seen all over the developing world, as 60-70 percent of patients were residents of rural areas in different studies.

VVF was once considered as the disease of young primigravida but recently more multiparous women develop VVF after labour. We also noted in our study that 60% were multi parous and our results are according Sih AM, et al.[12] Multiparity and poor nutritional replacement during pregnancy results in osteomalacia, thus, predisposing increase rate of cephalopelvic disproportion.[12]

Regarding etiology, the national as well as international literature quote the obstetrical trauma mainly in form of prolong obstructed labor as main etiological factor in formation of VVF which ranges from 70- 88%.[2,3,7] These findings are in accordance with our study we noticed the obstetrical trauma as main causative factor in development of VVF in 50 (78%) patients.

VVF can be successfully repaired through vaginal, abdominal and combined approach. There is no convincing evidence that one technique is superior to the other, possibly because of the difference in surgical training and experience. The optimum approach is what works best in the surgeon's hand. However, urologists prefer transabdominal route as it is considered as gold standard in supra trigonal VVF.

The controversy of interposition flap still prevails in the literature. Evans DH, et al reported almost 100 % successful result in 10 cases of abdominal repair of VVF with interposition graft versus 63% success out of 19 patients without graft.[13] However, the discrepancy in number of patients is so obvious that does not make it a good comparative study. Moreover, non placement of interposition flaps in VVF due to malignancy is another confounder in their study.

Study by Wahab F, et al. concluded that interposition of omentum is not necessary in improving successful outcome of VVF repair.[7] Singh V et al in 2019 published a prospective randomized trial about interposition flaps. They reported that success rate was 97.1% in transabdominal repair with an omental flap versus 97.06% in without an omental flap with sample size of 69 patients.[14] In our study, we found no significant difference between flap versus no-flap on the final outcome of surgery. In our study, the co-abdominal surgery was required in 28% patients. The ureteric reimplantation was the most common concomitant surgery. The ease of doing concomitant surgery in complex fistulae is considered as one of the advantages of abdominal repair in literature. Reynolds WS, et al in their study reported the beneficial effect of flap.[15] However; this study is with limitation of only five patients. Out of which, one patient had failure even with myofascial interposition flap.

LIMITATION OF THE STUDY

Small sample size and lack of randomization are the main limitations of the study. Moreover, the decision of interposition flap versus no-flap was purely dependent on surgeon's preference per operatively. Large scale randomized controlled trials are required to settle different controversies in management of VVF.

CONCLUSION

VVF is still a great social problem of developing world. Obstetrical trauma in form of prolonged obstructed labor is still the leading cause of VVF in Pakistan. O'Conor & Sokol technique is successful treatment modality in supra trigonal VVF. There is no significant difference of interposition flap on outcome of VVF repair.

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AUTHORS' CONTRIBUTIONS

Following authors have made substantial contributions to the manuscript as under:

LA: Conception and study design, acquisition of data, drafting the manuscript, critical review, approval of final version to be published

FH & AH: Acquisition of data, drafting the manuscript, approval of final version to be published

SK: Analysis and interpretation of data, drafting the manuscript, approval of final version to be published

SH: acquisition, analysis and interpretation of data, critical review, approval of final version to be published

KT: Study design, acquisition, analysis and interpretation of data, drafting the manuscript, approval of final version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest

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DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request

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