ORIGINAL ARTICLE

Outcome of Transvaginal Vesicovaginal Fistula Repair with Martius Fat Pad Flap in Comparison to Simple Closure

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ABSTRACT

Background: VVF is still a very troublesome complication of Obstetric and gynecological procedure in developing countries..Tissue interposition is often required for repair of complex vesicovaginal fistula. Local factors like size, location, and previous radiotherapy as well as surgeon's experience are detrimental in deciding for vaginal or abdominal approach.

Aim: To compare the outcome of martius fat pad flap and primary repair in terms of recurrence for the treatment of vesicovaginal fistula.

Methods: This was a randomized control trial, conducted at Department of Urology, Mayo Hospital, Lahore. 120 patients were enrolled in the study and randomly allocated to two groups. Martius Fat Pad Flap was done for group A patients and Group-B patients were treated with simple closure technique. Patients were followed up for period of 7 days to see recurrence by clinical examination and cystoscopy. Data was entered and analyzed on SPSS version 16. Statistical analysis was done according to the proposed plan.

Results: In Group-A mean age of patients was 35.50±5.98 and in Group-B mean age was 34.05±6.16 years respectively. Minimum and maximum age in Group-A was 24 and 47 years whereas 24 and 49 in Group B .Patients follow up showed that in Group-A only 2(3.33%) patients had recurrence while in Group-B 8(13.33%) patients had recurrence at 7th day follow up post operatively. According to p-value significant association was present between recurrence in relation to treatment group.

Conclusion: Results of this comparative trail shows that Martius Fat Pad Flap technique is more effective for treat in vesicovagianl fistula as compared to simple closure technique.

Keywords: Transvaginal, Vesicovaginal Fistula, Martius Fat Pad Flap, Simple Closure

INTRODUCTION

Vesicovaginal fistula is an abnormal communication between bladder and vagina that causes continuous and unremitting urinary incontinence[1]. It is most distressing complication of gynecological and obstetric procedures having psychological and social impact. Obstetric cause related to prolong/obstructed labour is now a days rare cause in industrialized world but still common cause in developing world[2,3,4]. Estimate suggest that three million women in poor countries have unrepaired VVFs and 30,000 to 130,000 new cases develop each year in Africa[5]. Among the genitourinary fistula, vesicovaginal fistula is most common and vesicouterine fistula is least common[6]. Total abdominal hysterectomy in modern world is a known cause while early marriages and child bearing, low literacy rate and poor antenatal services along with obstructed labour are important causes in under developed world. Most common presentation is urine leakage, severity varies from very trivial to continuous leakage .Recurrent cystitis or pyelonephritis, abnormal urinary stream, irritation in vulva and hematuria should lead to initiation of workup for vesicovaginal fistula (VVF)[7,8]. Surgical treatment is usually required for fistulous tracts which remains open beyond three weeks of conservative treatment. Supratrigonal fistula are usually corrected through transabdominal approach while infratrigonal through transvaginal approach which is safest approach(9) Anterior vaginal wall is used for urethral and bladder reconstructive surgeries in primary repair, occasionally in failed fistula occasionally in failed primary repair may necessitate the use of surrounding structures such as rectum, gracile muscle, perineal skin or labia majora[10].

Martius fat pad flap was first used in 1928. This original and modified techniques uses labium majora fat pad with or without overlying skin and or underlying bulbocavernous muscle[11,12,13]. Known complications of procedure are seroma/hematoma formation, infection, sexual dysfunction, pain numbness and labial adhesion[14,15].

Cystoscopy has been found to be most in identifying injuries to the bladder than strict visual inspection (96 % vs. 38 %, respectively) at end of hystrectomy. If injury is suspected, the bladder should be filled with fluid to localize any site of leakage. Repair of the injury should not be attempted until tissues are adequately mobilized[16,17,18]. The objective of this study is to compare the outcome of martius fat pad flap and primary repair in terms of recurrence for the treatment of vesicovaginal fistula.

PATIENTS AND METHODS

This randomized controlled trial was conducted at Department of Urology, Mayo Hospital, Lahore over a period of Six months from Jan 2016 till June 2016. This was Non-probability, purposive sampling. Sample size of 120 cases (60 in each group) was calculated with 80% power of test ,5% level of significance and taking expected percentage of recurrence in both groups i.e. 10% in primary repair group versus 0% in Martius fat pad flap for the treatment of vesicovaginal fistula. ***"Recurrence"*** was labeled as the disease after a period of 7 days remission-return of symptoms, occurring as a phenomenon in the

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natural history of the disease, clinical examination and cystoscopy will confirm recurrence. All female patients of any age, got operated for first time and having infratrigonal fistula on clinical examination and cystoscopy were included in study. Patients with pelvic malignancy and any kind of radiation therapy were excluded from study.

After approval from Ethical committee of hospital patients were enrolled from out-Patient. Detail procedure was explained to them and written informed consent was taken. These patients were randomly allocated into two groups A (martius fat pad flap, this repair done by using fat pad labial flap taken from labia majora interposing between two layers and closed with vicryl 2/0) and group B (simple closure, it is done by refreshing margins and closing the fistula in two layers with vicryl 2/0 without interposing tissue), sixty patients in each group. Patients were randomly divided into two groups by using lottery method without considering age and parity .Single senior consultant was operating surgeon. Patients were followed up for period of 7 days to see recurrence by clinical examination and cystoscopy. All this information was recorded in a predesigned Performa.

SPSS version 18 was used for data analysis. Variables in this study were analyzed. Quantitative data like age was presented by using mean±SD. Qualitative variables were presented as frequency and percentages i.e. recurrence of both groups. To compare the recurrence in both groups Chi square test was applied.. The p-value $\leq$0.05 was be considered as significant.

RESULTS

34.67±6.06 years was mean age. Age range of patients was 24 to 49 years respectively. In Group-A mean age of patients was 35.50±5.98 and in Group-B mean age was 34.05±6.16 years respectively. Age range Group-A was 24 and 47 years whereas in Group-B minimum and maximum age of patients was 24 and 49 years respectively (Table-1).

Patients follow up showed that in Group-A only 2(3.33%) patients had recurrence while in Group-B 8(13.33%) patients had recurrence at 7th day follow up post operatively. According to p-value significant association was present between recurrence in relation to treatment group. Patients in Group-A had lower recurrence rate as compared to Group-B patients. According to this study results Martius fat pad flap is more effective technique for the management of vesicovaginal fistula in terms of recurrence (Table-2).

Table 1: Descriptive statistics for age in treatment groups

	Group A	Group B	Total
Mean	35.30	34.05	34.67
SD	5.98	6.16	6.07
Minimum	24.00	24.00	24
Maximum	47.00	49.00	49

Table 2: Recurrence of VVF in treatment groups

Recurrence	Group A	Group B	Total
Yes	2(3.33%)	8(13.33%)	10(8.33%)
No	58(96.64%)	52(86.64%)	110(91.64%)
Total	60	60	120

Chi-Square= 3.927

P-value=0.023 (Significant: p-value<0.05)

DISCUSSION

Genitourinary fistula is a source of misery leading to poor quality of life which effects 3.5 million women worldwide. Obstetric Vesicovaginal fistula **(**VVF) isnow a rarity in developed world as a result of better health services, but in developing countries it is still quite pravelant condition. Obstetric injuries are major cause, accounting for 90-95% cases VVF in developing countries[12,2,20].

Two approaches are mainly used for surgery, one is through vaginal route and other is through abdominal route .Surgeon's experience, location of fistula and presence or absence of vaginal steinosis are major determinant of choice of procedure. Omental interposition is commonly performed in peritoneal approach, but free bladder mucosal autograft, peritoneal graft, anterior rectus sheath, ileal graft and even human duramater is used with success in Martius fat graft[19].

In this study mean age of patients was 34.67±6.07 years. Age range of patients was 24-49 years respectively. Age range of VVF patients reported in a study from Nepal was 18-50 years with mean age of patients was 34.35±9.16 years.(21) A local studies have reported age range for VVF patients 12-55 years.(22) and 20-48 years with mean age of 34.(23) Age range of patients from an Indian study was 17-55 years with mean of 32(24) while a Turkish study reported age range of 22-66 years with mean of 32[25].

The Martius labial fat flap, which was introduced in 1928 by Martius, mainly consists of fat and connective tissue and has a rich blood supply. It has been widely accepted and adopted for the repair of urethrovaginal, vesicovaginal and rectovaginal fistulae, with success rate close to 100%. Recurrence rate by using Martius flap was 3.33% vs 13.33% in group B where Martius flap was not used. Radopoulos reported significantly higher failure of anatomical repair (14%) without Martius flap interposition compared with only 8.33% with Martius flap interposition, in patients with multiple previous interventions[26,10]. Recurrence rate in our study 3.3, are comparable to results of study by Radopolous . Success rate in our study was 96.64% while 100% success rate through per-vaginal approach was documented in study by Rehman[27].

Few Surgeons have also reported high success rate using simple closure techniques and vaginal approach. For genital fistula (90.90% for VVF and 93.33% for RVFs) with one recurrence in each case[5,25]. The reasons for postoperative complications are infection, tension on sutures previous surgeries and ischemia Complex vesicovaginal fistulas are a big challenge for the urologist and there is no gold standard surgical approach. The Surgeons experience with surgical technique and anatomy seems to be the main factor for treatment success. So there is a need to adopt alternative techniques for treatment while keeping in mind all the clinical and patients related factors.

CONCLUSION

Results of this study revealed that Martius flap is excellent treatment option for VVF repair. Recurrence rate on 7th day post operative was 3.33% and in closure group recurrence rate was 13.33% respectively. This difference of both treatment groups makes the Martius flap pad as treatment

of choice. A successful non recurrence repair not only help fistula patient to be integrated in social activities as routinely as before the occurrence of the disabling event of Vesicovaginal Fistula.

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