

COMPARISON OF TRANSVESICAL REPAIR OF VESICO-VAGINAL FISTULA AND USE OF FREE BLADDER MUCOSAL GRAFT

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ABSTRACT

This study was designed to compare the efficacy and complications of the conventional transvesical repair of vesicovaginal fistula versus new technique using free bladder mucosal graft for repair. It was carried out on 16 patients aged 16-45 years in the Departments of Urology, Services Hospital and Jinnah Hospital, Lahore from 1999 to 2001. Patients were randomly divided into two groups A and B. In group A, 8 patients who underwent conventional transvesical repair of vesicovaginal fistula whereas in group B, 8 patients who underwent repair using free bladder mucosal graft. Out of 16 patients, the recurrence was observed in 3 patients (37.5%) in group A and 1 patient in group B, (12.5%). There was statistically no significant difference $P > 0.05$. The transvesical free bladder mucosal graft repair provides good result with minimum complications. This method is recommended for routine repair of vesicovaginal fistulae without extensive dissection of the diseased area.

INTRODUCTION

Female good health and longer life are still facing significant problems including multiple pregnancies, obstructed labour and vesicovaginal fistulae. Among these problems vesicovaginal fistula is the most common and highly unacceptable condition. Medical care has reduced these problems and has returned females to their healthy and fruitful life.¹ Vesicovaginal fistula (VVF) is a subtype of female urogenital fistula. It is an abnormal fistulous tract extending between the bladder and the vagina that allows the continuous involuntary discharge of urine into the vaginal vault.² Vesicovaginal fistula is a disease that is rare in developed world but is frequently seen in poorer communities. It is mostly the result of gynaecological or obstetrical procedures.³ The incidence of fistulae as a result of surgery has remained relatively unchanged for years; 75% occur during gynaecological procedures.⁴ VVF after hysterectomy has been suggested to result from tissue necrosis and erosion as a consequence of inadvertent suture placement between the vaginal cuff and the posterior aspect of the bladder.⁵ In transvesical repair of vesicovaginal fistula the dissection of the tissue may be extensive, particularly if the defect is large and is time consuming.⁶ Adequate uninterrupted bladder drainage is probably the most critical aspect of post-operative management. Catheter drainage is continued until voiding cystourethrogram is performed at 10-14 postoperative day to confirm closure of the fistula.⁷

The free bladder mucosal graft was easily tailored and can be used regardless of the individual anatomy or proximity to the ureteral orifice.

This approach involves minimal mobilisation of the bladder and decreases dissection of fistulous tract and obviate the need for rotation or interposition flaps.⁸ The ideal tissue for complex urethral reconstruction has yet to be determined, especially in patients with deficient prepuce. The use of bladder mucosa as a free graft could be an alternative in these problem cases. Bladder mucosa grafts can be used successfully for urethral reconstruction especially when combined with preputial or tunica vaginalis grafts distally.⁹ A new technique of transvesical repair of vesicovaginal fistula has been introduced by Ostad et al¹⁰ using a free bladder mucosal graft. It is a simple technique requiring minimal dissection and has given good results.

PATIENTS AND METHODS

This study was conducted at the Departments of Urology, Services Hospital and Jinnah Hospital, Lahore from 1999 to 2001. A total of 16 patients with vesicovaginal fistula were included. These patients were divided in two groups (Group A and Group B), each group comprising eight patients. In group A, 8 patients with vesicovaginal fistulae which underwent conventional transvesical repair of vesicovaginal fistulae while in group B, 8 patients with vesicovaginal fistulae which underwent repair using free bladder mucosal graft. The procedure was performed under general anaesthesia. Our inclusion criteria was fistulae bigger than 2.5 cm and the bladder mucosa adjacent to the fistula was excised for a circumferential distance of approximately 1 cm. Vesicovaginal fistula was appro-

ached transvesically by Pfannenstiel incision. Margins of fistula were excised and tension free suturing of healthy tissues was carried out in layers. Underlying superficial and deep fascia were cut in the line of incision. Bladder identified and opened transversely. The edges of the bladder were undermined taking care of terminal ureters on each side. After mobilising the bladder, the fistula was excised to give healthy and mobile vaginal margins. The vaginal defect was closed tension free with vicryl 3/0 and the free musocal graft placed over the fistulous tract and secured in place with interrupted 4-0 vicryl sutures. A graft of suitable size and shape obtained and placed in sterile saline until ready for use. The significance of difference was tested using Fisher exact test and SPSS version 10.5 was used. Probability <0.05 was regarded as significant.

RESULTS

The causes of vesicovaginal fistulae were observed, they obstructed labour in 5 patients (62.5%), hysterectomy in 1 patient (12.5%) and caesarean section in 2 patients (25%) in group A, while in group B, obstructed labour in 5 patients (62.5%), hysterectomy in 2 patients (25%) and caesarean section in 1 patient (12.5%). Statistically the significant difference was in significant ($P>0.10$) (Table 1).

Table 1: Aetiology of vesicovaginal fistulae.

Aetiology	Group A (n=B)		Group B (n=B)	
	No. of Patients	%	No. of Patients	%
Obstructed labour	5	62.5	5	62.5
Hysterectomy	1	12.5	2	25.0
Caesarean	2	25.0	1	12.5

Table 2: Post-operative complications of VVF.

Complication	Group A (n=B)		Group B (n=B)	
	No. of Patients	%	No. of Patients	%
Recurrence	1	37.5	1	12.5
Wound infection	1	12.5	-	-
Diverticulum	-	-	1	12.5
Urinary tract infection	2	25.0	1	12.5

The postoperative complications were noticed, urinary tract infection in 2 patients (25%), wound infection in 1 (12.5%), and recurrence of vesicova-

ginal fistula in 3 patients (37.5%) in group A, while in group B, there was urinary tract infection in 1 patient (12.5%), diverticulum formation in 1 patient (12.5%) and recurrence of vesicovaginal fistula in 1 (12.5%). The success rate was noted 62.5% in group A and 87.5% in group B. Statistically the difference was not significant ($P>0.05$) (Table 2).

DISCUSSION

Vesicovaginal fistula caused by erosion of foreign body such as pessary¹¹ or vigorous intercourse¹² have also been reported. This usually occurs in those who are married at a very young age or those who have been raped. Other less common causes of VVF include pelvic malignancy, pelvic irradiation, obstetric trauma and infection including tuberculosis.¹³ Vesicovaginal fistula can be a great stress to the patient and challenge for the surgeon. This means abnormal communication between the urinary bladder and vagina.^{14,15} Conventional vesicovaginal fistula is very rare and may result from an abnormality of fusion of the lower end of the mullerian duct with the urogenital sinus. The condition is usually associated with other urinary tract anomalies.^{16,17}

The use of free graft of the bladder mucosa was first described in the repair of hypospadias. Large experience was subsequently gained by using free tubularised bladder mucosal graft for complex hypospadias.¹⁸ The free bladder mucosal autograft technique is a simple, effective and fast method for vesicovaginal fistulae repair. The technique produces an excellent repair of complicated vesicovaginal fistula, and appears to be more physiological and easier to perform than other trans-abdominal techniques.¹⁹

We **conclude** the results of bladder free graft repair with transvesical repair, the success rate is high in mucosal free flap repair than transvesical repair i.e. 87.5% versus 62.5% respectively. Complication rate was less in mucosal free graft repair.

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