

Original Article

Comparison of the Short Term Versus Long Term Catheterization After Vaginal Prolapse Surgery

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Abstract

Objective: To comparison of the outcome of short term versus long term catheterization after vaginal prolapse surgery.

Methodology: This randomized controlled trial has been conducted from January 2015 to December 2015 at the Obstetrics & Gynecology Department of Bahawal Victoria Hospital, Bahawalpur. Patients who underwent foley's catheter insertion after vaginal prolapse surgery, 40 to 80 years of age were included. Patients with previously urinary tract infections, requiring prolonged catheterization due to intraoperative bladder trauma and post-operatively vesico-vaginal fistula were excluded. Subjects were randomly placed into Group A (short term catheterization, 1 day) and Group B (long term catheterization, 3 days), via lottery method. The outcome in term of re-catheterization, urinary tract infections and residual urine >50 ml on ultrasonography was noted for both groups after catheter removal on a respective day.

Results: Total 126 patients were studied. Mean age was 57.78±9.81 years for group-A and 58.78±8.90 years for group-B patients. In Group A (short term), re-catheterization was found 4.76%, urinary tract infections 7.94% and residual urine >50 ml in 25.40%, these findings were significantly lower as compared to Group B (long term), as; re-catheterization was 17.46%, urinary tract infections 39.68% and residual urine >50 ml 53.97%, p-values quite significant.

Conclusion: This study concluded that the short term catheterization showed a better outcome than the long-term catheterization following vaginal prolapse surgery.

Keywords: Pelvic organ prolapsed, retention of urine, catheterization, infections.

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Introduction

Genital prolapse is a prevalent disorder that has been encountered in daily practice of gynecology. Defects in pelvic support structures lead to a multitude of pelvic relaxation abnormalities that are clinically obvious. Many of the prolapsed surgical procedures aim to restore the prolapsed organ.¹ Females have an 11% lifetime risk of undergoing

incontinence surgical procedure or vaginal prolapse. Urinary retention is among the most prevalent problems immediately associated with prolapse surgery. In several cases, the retention observed is temporary.² Following genitourinary surgical procedure, urinary catheterization is an established procedure to allow drainage and to avoid bladder

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distention. In vaginal prolapse surgical procedure, is essential due to the enhanced risk of urinary retention, however may not be a safe procedure.³ Its application, though, was comparatively custom-based, based on hospital policies, and subjective inclination-dependent, so the duration differs significantly.^{4,5} Short-term catheterization can possibly result in the decline of urinary tract infections and hospital stay. The former is vital since infections of the urinary tract represent 40% of hospital-acquired diseases and 80% of these diseases are correlated with urinary catheter usage. Alternatively, voiding more postoperative problems, such as voiding of obstructive and massive residual volumes, which could result in infections of the urinary tract and bladder dysfunction, are correlated with a short-term catheterization.^{2,4,6} Thus, to minimize postoperative morbidity, good timing for catheter elimination is very essential. Although postoperative catheterization is widely used, well-designed researches on this issue are limited. The goal of current study was therefore to contrast the outcome of short-term (1 day) versus long-term (3 days) catheterization in local population following vaginal prolapse surgical procedure. Based on this empirical evidence, the patients could be provided with proper timing of post-operative catheter removal for reducing morbidity and better timing of catheter removal could be recommended in our regular practice recommendations.

Methodology

This randomized controlled trial has been conducted from January 2015 to December 2015 at the Obstetrics & Gynecology Department of Bahawal Victoria Hospital, Bahawalpur, after approval from the local ethical committee. All the women who underwent foley's catheterization after surgery of vaginal prolapse and 40 to 80 years of age were included. Patients with previously urinary tract infections, requiring prolonged catheterization due to intraoperative bladder trauma and post-operatively vesico-vaginal fistula were excluded. After explaining the study's objectives, methods, relatively unexpected benefits, and potential risks, informed consent was obtained. All the patients were divided into two groups. Group A (short term) contained the patients in which

foley's catheter was retained for 1 day while group B (long term) contained patients in which foley's catheter was retained for 3 days post-operatively. The outcome was assessed in terms of re-catheterization, urinary tract infection and residual urine >50 ml. Re-catheterization was done due to retention of urine i.e. unable to pass urine or residual urine >200ml after catheter removal and needed catheter insertion again within 24 hours of catheter removal, urinary tract infections were defined on presence of bacterial colony count $\geq 10^3$ colony-forming units per mL on urine culture report and residual urine defined as when residual urine volume >50 ml on ultrasonography. Patients were noted for both groups after catheter removal on a respective day. All the data was recorded in a pre-designed proforma and was analyzed by SPSS version 20.

Results

Total 126 patients studied with age ranged between 40 years to 80 years and mean age of women of group A was 57.78 ± 9.81 years and 58.78 ± 8.90 years of women of group B, mean age was statistically insignificant. Majority of the patients 53(42.06%) were between 51 to 60 years of age. Table I

Age	Group A (n=63)	Group B (n=63)	p-value
Mean\pmSD	57.78 ± 9.81 years	58.78 ± 8.90 years	0.875

The outcome in both groups is shown in Table-II. In Group A (short term), re-catheterization was found in 03(4.76%) patients, urinary tract infections in 05(7.94%) and residual urine >50 ml in 16 (25.40%) patients. While in Group B (long term), there was re-catheterization in 11 (17.46%) patients, urinary tract infections in 25 (39.68%) and residual urine >50 ml in 34 (53.97%) patients. According to the above findings, the outcome was better in group A in contrast to group B, p-values were quite significant. All these complications have shown p-value <0.05 between both groups which was statistically significant.

Table II: Outcome in both groups (n=126)

Outcome		Group A (n=63)	Group B (n=63)	P-value
		No. (%age)	No. (%age)	
Re-catheterization	Yes	03 (4.76%)	11 (17.46%)	0.023
	No	60 (95.24%)	52 (82.54%)	
Urinary tract infections	Yes	05 (7.94%)	25 (39.68%)	0.0001
	No	58 (92.06%)	38 (60.32%)	
Residual urine >50ml	Yes	15 (23.81%)	34 (53.97%)	0.001
	No	48 (74.19%)	29 (46.03%)	

Discussion

Policy on the length of Post-operative catheterization must be based on controlled randomized trials. Following a number of gynecological surgeries, in terms of the elimination of urinary catheters on day-5, day-4, day-2, day-1, 3 hours and immediately following prolapse surgical procedure, the time of urinary catheter elimination varies among the authors.^{7,8} Hysterectomy patients would have removed their urinary catheters during 24 hours, 12 hours, 6 hours or instantly after surgical procedure.⁹ Although the finding of a Cochrane review concerning the duration of catheterization remains contentious, it indicated that lesser urinary tract infections (UTIs) were found when catheters were withdrawn earlier in 7 out of 11 studies.¹⁰ Catheter-related UTI is a significant factor in health facilities.¹¹

In this study in Group A (short term), re-catheterization was found in 03 (4.76%) patients, urinary tract infections in 05 (7.94%) and residual urine >50 ml in 16 (25.40%) patients. While in Group B (long term), there was re-catheterization in 11 (17.46%) patients, urinary tract infections in 25 (39.68%) and residual urine >50 ml in 34 (53.97%) patients. All these complications have shown p-value <0.05 between both groups which were statistically significant. The final outcome was successful in 45 (71.43%) patients in group A and in 26 (41.27%) patients in group B which is statistically significant (p<0.05). Khatun MHA et al³ has shown re-catheterization in 14%, urinary tract infection in 34% and residual urine 50-200 ml in 74% patients with long term catheterization (3 days) after vaginal prolapse surgery while 26.78%, 8.0%, and 25.0% respectively after

short term (1day) catheterization. Recently it is reported that short period of catheterization is associated with greater rates of postoperative urinary retention, while prolonged time of catheterization leads to greater rates of urinary tract infection.¹² Thakur N et al¹³ has shown re-catheterization in 2.0%, urinary tract infection in 22.0% and residual urine 50-200 ml in 84.0% patients with long term catheterization (3 days) after vaginal prolapse surgery while 6.0%, 4.0% and 22.0% respectively after short term (1day) catheterization. Hakvoort RA et al¹⁴ established immediate prerequisite of re-catheterization when RUV was above 200 ml in 40% cases in the group of short term catheterization, which is distressingly high. He also discovered that within the 5th day-catheter extraction group, the UTI rate was greater (40 percent) compared to 4 percent in the group that removed their catheter in the morning following surgical procedure. Schiotez HA et al¹⁵ recounted low urinary retention within the group of short-term catheterization.

In a review done by Fattah ANA et al⁵, it was found that, even though correlated with an enhanced risk of re-catheterization, the 24-hour catheterization strategy in vaginal prolapse surgical procedure and hysterectomy remains most effective. In research, participants who instantly removed the catheter at operating room had a considerably greater rate of re-catheterization contrasted to those who removed it on the first day after surgery.⁹ Similarly Kamilya G et al¹⁶ performed vaginal prolapse surgical procedure among 200 females in their RCT. Participants in the 1st-day catheter extraction group were 3-times more subjected to re-catheterization than those in the 4th-day catheter extraction group. They found that early

catheter removal appears to be more beneficial, with reduced prevalence of urinary tract disease and a shorter stay at the hospital, although correlated with greater re-catheterization risk. Pant PR et al¹⁷ found a lower incidence of re-catheterization (5/257) and UTIs in short term catheterization group than the long term (5 days) catheterization group. Thapa M et al¹⁸ observed no re-catheterization in the females of short term catheterization group and re-catheterization in 3.7% cases within long term catheterization group. Choudhury FR et al¹⁹ has shown re-catheterization in 3.0%, urinary tract infection in 16.0% and residual urine 50-200 ml in 67.0% patients with long-term catheterization (3 days) following vaginal prolapse surgical procedure while 10.0%, 6.0% and 65.0% respectively after short term (1day) catheterization. Alessandri F et al²⁰ performed a distinct RCT by assigning 96 females to 3 groups who had different type of hysterectomies. Those who had withdrawn the catheter instantly following the surgical procedure had a considerably greater rate of re-catheterization than the group of 12 hours and 6 hours. Glavind K et al⁸ reported a greater prevalence of re-catheterization among females with catheter removal at 3 hours contrasted to the postoperative group of 24 hours. While Barone MA et al²¹ reported that 7 days catheterization was safe as compare 14 days group. Rajan P et al²² also found similar findings. Dunn TS et al²³ reported that early elimination of catheters was not correlated with re-catheterization, UTI, and raised rate of febrile events. Steen AVD et al⁶ found that the mean duration of hospital stay and catheterization was considerably shorter among the individuals of 1-day catheterization group in contrast to 3-day catheterization group, while findings were insignificant and the difference of UTI rate between groups was also not statistically significant.

Conclusion

This study concluded that that the short term (1-day) catheterization showed a better outcome in terms of lower rate of re-catheterization, urinary tract infection and residual urine >50 ml as compared to the long-

term (3-days) catheterization following vaginal prolapse surgery. Short term catheterization (1 day) should be done after vaginal prolapsed surgery as in order to reduce morbidity of these particular patients.

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