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EARLY CATHETER REMOVAL AFTER PELVIC FLOOR RECONSTRUCTIVE SURGERY: A RANDOMIZED TRIAL

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Abstract:
Overpressure due to incomplete bladder emptying or unaddressed urinary retention can lead to the development of myogenic and neurogenic damage, ureteral reflux and detrusor dysfunction due to overdistension and elevated intravesicular pressure. Two methods have defined to evaluate the voiding function post-operatively by performing a retrograde or a spontaneous fill voiding trial on post-operative day. A retrograde voiding trial has more sensitivity and specificity as compared to the detection of urinary retention compares with spontaneous fill which has less specificity and sensitivity. Studies have yet to examine the impact of a day-of- surgery voiding trial on voiding function in women undergoing apical suspension and obliterative procedures.
The study has concluded that early voiding trial post-operatively has been found effective and catheter removal has been feasible, safe and acceptable on post-operative day 1 in women undergoing major pelvic reconstructive surgeries.

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INTRODUCTION:

Once in a lifetime all of 12% women had to undergo for pelvic floor reconstruction surgery for pelvic organ prolapse. [1] Approximately 15-45% are at greater risk of getting temporary post-operative urinary retention. [2]

Overpressure due to incomplete bladder emptying or unaddressed urinary retention can lead to the development of myogenic and neurogenic damage, ureteral reflux and detrusor dysfunction due to overdistension and elevated intravesicular pressure. Two methods have defined to evaluate the voiding function post-operatively by performing a retrograde or a spontaneous fill voiding trial on post-operative day. A retrograde voiding trial has more sensitivity and specificity as compared to the detection of urinary retention compares with spontaneous fill which has less specificity and sensitivity. Studies have yet to examine the impact of a day-of- surgery voiding trial on voiding function in women undergoing apical suspension and obliterative procedures. Two peri-operative catheter management strategies were taken under-consideration to evaluate the major effectiveness. Our primary objective was to evaluate if conducting a voiding trial on the day of surgery would result in faster time to spontaneous void, compared with a standard voiding trial performed on post-operative day 1 in women undergoing major pelvic reconstructive surgery. We hypothesized that performing earlier evaluation would result in earlier catheter removal and consequently faster time to spontaneous void.
Materials and methods

STUDY DESIGN:

It was a randomized controlled trial. In which 62 participants were included who had to under go major pelvic floor reconstructive surgery. 4 hours before pos operative surgery on the same day women were randomized on the early voiding trial.
Women were followed until the primary endpoint, return of spontaneous void, which was defined as the ability to void without the assistance of a catheter. The time to spontaneous void was compared between voiding trial groups for our primary outcome. Any neurological condition having an impact on voiding function or incomplete bladder emptying preoperatively were excluded from the study.

Patients completed baseline questionnaires that included a pain visual analog scale (VAS), State-Trait Anxiety Inventory state subscale (STAI-S), and questions related to catheter bother.

Three questionnaires along with baseline questionnaire were included. Visual pain analogue scale, state trait anxiety inventory subscale and questions related to catheter. Continuous variables were presented as means and standard deviation whereas categorical data was presented as frequency or percentage. Non-normal distributions were compared using Wilcoxon rank-sum tests. Chi-squared analyses or Fisher's exact tests were used to compare proportional data.

RESULTS:

Total 62 participants who met the inclusion criteria were included into the study. The mean age was 61 ±12 years and BMI were 29.7 ± 4.2 kg/m2. 56% women were menopausal and half of them had hysterectomy. Pre-operative pelvic organ prolapse stages were included in the study. In the stage II 11% women were present. 78% were in stage III and 14% in stage IV. The duration of surgery was mean 2.9 ± 0.8 h. Two women in the standard voiding trial group had a concomitant mid-urethral sling. One-quarter of women had vaginal packing placed at the end of the procedure at the discretion of the surgeon and removed before their voiding trial. Intra-operative complications were low. As compared to standard group there was difference observed in time to spontaneous void in the early voiding trial group. 45% patients who were randomized to early voiding trial had spontaneous voiding after 4h of surgery completion. Moreover 25% women of the early voiding group passed urine trial after 1 day on post-operative

Therefore, by the time of discharge there were no group differences in the rates of spontaneous voiding. At the time of discharge other factors such as including type of prolapse repair, concomitant hysterectomy, and concomitant mid-urethral sling were not linked with spontaneous void at the time of discharge. Length of admission was not statistically different in voiding trial group. Those who passed their voiding trial had a 5-h shorter hospital admission when compared with those who were discharged using a catheter.
Of the 14 patients in both groups who required a catheter at the time of discharge on post-operative day 1 (24.6%), most (n = 12) were voiding spontaneously by post-operative day 6. The remaining 2 patients both in the standard group had prolonged urinary retention and required catheterization for 13 and 31 days respectively. Risk of UTI was less in both group and there was no statistically different in both groups. It has observed that patients in the early voiding trial group ambulated sooner as compared to those who were in standard group.

At the time of discharge on post-operative day 1, we found patients who were spontaneously voiding regardless of randomization group had significantly lower situational anxiety than those who required catheterization. Women who were spontaneously

voiding had reported less anxiety at the time of discharge than pre-operatively whereas women who were having catheter had same anxiety level as before.

DISCUSSION:

The current study has determined that the day-of-surgery voiding trial was associated with decreased time to spontaneous voiding when controlling for potential confounding factors. It further added that voiding trial has shown feasible and it leads to minimum use of catheter. One more finding was indicted that women who could not void on the day of surgery has passed voiding trial in the next morning. The results were similar of spontaneous voiding at discharge in both groups. Few hours of bladder rest after a failed early voiding trial resulted in passing a subsequent voiding trial the next morning. Many transient factors such as pain, inflammation, edema, and anesthesia were linked with transient bladder abnormalities. Modifying these factors through adequate pain control, anti-inflammatory medications, and decompression in the immediate post-operative period may allow normal sensation to return overnight and lead to spontaneous voiding. It is possible that better pain and nausea control contributed to the early return of bladder sensation and spontaneous void in our study patients who had an early voiding trial. Pre- and post- operative anti-emetics and analgesics use was not recorded as part of this study.

Many studies have given both the possibilities of having the association of risk factors such as conflicting results on predictors of post-operative urinary retention with severity of anterior wall prolapse, anesthesia type, higher EBL, concomitant midurethral sling, and levator myorrhaphy.

The decrease in length of admission in the early voiding trial group. This reflects their pre-planned inpatient status regardless of their voiding status. After completion of this study, the parameters for discharge home have changed and patients are being discharged on the day of surgery. Our study population was representative of a diverse sample of prolapse procedures to increase generalizability. Another study calculated the duration of catheterization leads to increased incidence in catheter- associated UTI, which is the leading nosocomial infection. The rate of the UTI in our study was low at 6.6% and, interestingly, did not correlate with catheter use. The rate of UTI may be underestimated as not all patients were treated at our facility and may have been treated empirically by a primary care provider. However, as part of the post- operative questionnaire, we asked if the participants were evaluated for any reason since their surgery or if they had any symptoms suggestive of a UTI. In a randomized control study assessing the need for antibiotic use in an attempt to prevent catheter-associated UTI, the rate of UTI was found to be 10-18%, and the authors did not find a difference between the UTI rate among patients with and without concomitant pelvic floor reconstructive surgery.10 Similarly, in the trial comparing retro- pubic slings with transobturator slings the rate of UTI was 15.4% in the retropubic sling group and 9.0% in the trans- obturator sling group.

The study has concluded that early voiding trial post-operatively has been found effective and catheter removal has been feasible, safe and acceptable on post-operative day 1 in women undergoing major pelvic reconstructive surgeries.

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