



Case Study

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## Optimal Timing of a Second Postoperative Voiding Trial in Women with Incomplete Bladder Emptying after Vaginal Reconstructive Surgery

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Women who underwent vaginal prolapse surgery and did not immediately have a successful voiding trial were seven times more likely to pass their second voiding trial if their follow-up was 7 days after surgery instead of 4 days, according to a study in the American Journal of Obstetrics and Gynecology.

“This information is useful for setting expectations and for counselling patients on when it might be best to repeat a voiding trial in those with transient incomplete bladder emptying on the day of surgery, especially for those who may not live close to their surgeon, or for those who have difficulty traveling to the office,” said Jeffrey S. Schachar, MD, of Wake Forest Baptist Health in Winston-Salem, N.C., and colleagues. “Despite a higher rate of initial unsuccessful office voiding trials, however, the early group did have significantly fewer days with an indwelling transurethral catheter, as well as total catheterization days,” including self-catheterization.

The researchers note that rates of temporary use of catheters after surgery vary widely, from 12% to 83%, likely because no consensus exists on how long to wait for voiding trials and what constitutes a successful trial.

“It is critical to identify patients with incomplete bladder emptying to prevent pain, myogenic and neurogenic damage, ureteral reflux and bladder overdistension that may further impair voiding function,” the authors wrote. “However, extending bladder drainage beyond the necessary recovery period may be associated with higher rates of urinary tract infection (UTI) and patient bother.”

To learn more about the best duration for postoperative catheter use, the researchers enrolled 102 patients before they underwent vaginal prolapse surgery at Wake Forest Baptist Health and Cleveland Clinic Florida from February 2017 to November 2019. The 29 patients with a successful voiding trial within 6 hours after surgery left the study, and 5 others were excluded for needing longer vaginal packing.

The voiding trial involved helping the patient stand to drain the bladder via the catheter, backfilling the bladder with 300 mL of saline solution through the catheter, removing the catheter to give women 1 hour to urinate, and then measuring the postvoid residual with a catheter or ultrasound. At least 100 mL postvoid residual was considered persistent incomplete bladder emptying.

The 60 remaining patients who did not pass the initial voiding trial and opted to remain in the study received a transurethral indwelling catheter and were randomly assigned to return for a second voiding trial either 2-4 days after surgery (depending on the day of the week) or 7 days after surgery. The groups were demographically and clinically similar, with predominantly white postmenopausal, non-smoking women with stage II or III multicompartiment pelvic organ prolapse.

Women without successful trials could continue with the transurethral catheter or give themselves intermittent catheterizations with a follow-up schedule determined by their surgeon. The researchers then tracked the women for 6 weeks to determine the rate of unsuccessful repeat voiding trials.

Among the women who returned 2-4 days post-surgery, 23% had unsuccessful follow-up voiding trials, compared with 3% in the group returning 7 days after surgery (relative risk = 7; P = .02). The researchers calculated that one case of persistent postoperative incomplete bladder emptying was prevented for every five patients who used a catheter for 7 days after surgery.

Kevin A. Ault, MD, professor of obstetrics and gynecology at the University of Kansas Medical Center in Kansas City, said the study was well done, although the findings were unsurprising. He said the clinical implication is straightforward – to wait a week before doing a second voiding trial.

“I suspect these findings match the clinical experience of many surgeons. It is always good to see a well-done clinical trial on a topic,” Dr. Ault said in an interview. “The most notable finding is how this impacts patient counseling. Gynecologists should tell their patients that it will take a week with a catheter when this problem arises.”

“The main limitation is whether this finding can be extrapolated to other gynecological surgeries, such as hysterectomy,” said Dr. Ault, who was not involved in the study. “Urinary retention is likely less common after that surgery, but it is still bothersome to patients.”

Dr. Schachar and associates also reported that patients in the earlier group “used significantly more morphine dose equivalents within 24 hours of the office voiding trial than the late-voiding trial group, which was expected given the proximity to surgery” (3 vs. 0.38;  $P = .005$ ). However, new postoperative pain medication prescriptions and refills were similar in both groups.

Secondary endpoints included UTI rates, total days with a catheter, and patient experience of discomfort with the catheter. The two groups of women reported similar levels of catheter bother, but there was a nonsignificant difference in UTI rates: 23% in the earlier group, compared with 7% in the later group ( $P = .07$ ).

The early-voiding trial group had an average of 5 days with an indwelling transurethral catheter, compared with a significantly different 7 days in the later group ( $P = .0007$ ). The early group also had fewer total days with an indwelling transurethral catheter and self-catheterization (6 days), compared with the late group (7 days;  $P = .0013$ ). No patients had persistent incomplete bladder emptying after 17 days post-surgery.

“Being able to adequately predict which patients are more likely to have unsuccessful postoperative voiding trials allows surgeons to better counsel their patients and may guide clinical decisions,” Dr. Schachar and associates said. They acknowledged, however, that their study’s biggest weakness is the small enrollment, which led to larger confidence intervals related to relative risk differences between the groups.

The study did not use external funding. Four of the investigators received a grant, research funding, or honoraria from one or many medical device or pharmaceutical companies. The remaining researchers had no disclosures. Dr. Ault said he had no relevant financial disclosures. The one-week postsurgical interval for voiding trial increases pass rate.