Bladder catheterization is commonly used in the perioperative period to monitor the urinary output and to prevent postoperative retention. This can be done by transurethral (TUC) or suprapubic catheterization (SPC). Although TUC is the most preferred among abdominal surgeons in many countries, its notable disadvantage include urethral discomfort and the associated occurrence of urinary tract infection (UTI), recatheterization and low satisfaction. SPC is widely used after cardiothoracic (1,2) and gynecological (3) operation. SPC was initially applied in the 1960s, and according to a recent article published from the Netherlands, 12% of gynecologists perform SPC (4). In Japan, most of doctors preferred TUC, which is inserted through the urethra, a natural tract, over SPC, which requires the artificial visceral puncture, not only in general surgery but also in gynecological surgery patients. This is the present standard of care and an indisputable reality. According to a systematic review and meta-analysis of randomized controlled trials, SPC was associated with significant reduction in UTI but an increased risk of complications. There was no significant difference in terms of the duration of catheterization and the rate of recatheterization. The complications were mostly related to malfunction of the catheter such as urine leakage, catheter blockage, and urinary retention, without visceral injuries (3). And many articles reported patients’ satisfaction and loss of discomfort (5,6).

Presently, there are few published randomized, prospective studies comparing TUC and SPC in abdominal surgery patients (7-12). Four of six articles reported that TUC had higher UTI rate than SPC (7-12), especially in female (8,11). However, SPC was significantly associated with reduction rate of UTI in all of the gynecological reports (3). There may be a difference according to the gender. The risk of retention and recatheterization was shown to be higher in the TUC group, with a statistically significant difference. A median duration of bladder drainage of 5 days was reported by O’Kelly (9) and Ratnaval et al. reported 7.2 days (10), and there was no difference in the duration of drainage between TUC and SPC in both reports. There was no report on the affection of the duration of hospital stay by the catheterization. Using a pain score system, three trials measured pain or discomfort reported by the patients (9,11,12), and a statistically significant increase of pain or discomfort due to TUC was confirmed. The patients who experienced both TUC and SPC, preferred SPC (8,10). Although some SPC complications dependent on the catheter blockage had been reported in gynecological operation, using the small-bore catheter or a Foley catheter, Rasmussen et al. used (7) and Sethia et al. (8) reported no issues of catheter blockage. Minor leakage around the catheter was found in a few patients (8). Complications due to technical issues were not reported, and cost and patients’ specific factors were not examined.

Early bladder dysfunction is reported to occur in approximately 58% of patients receiving pelvic rectal surgery with total mesorectal excision (13), dependent
on the autonomic nerve injury during rectal mobilization and division. Some cases require urinary catheterization for more than 14 days. In such cases, the duration of catheterization is associated with increased discomfort to the patients, and SPC could be a tool to reduce the discomfort.

The laparoscopic approach is increasing worldwide, especially in colorectal surgery. It associated with minimal invasiveness for the patients, due to the minimal surgical wound and consequently, reduced pain. It is logical to assume that better visualization of the pelvic anatomical structures, such as offered by laparoscopic or robotic surgery, can aid preservation of the autonomic nerves. However, it is controversial if laparoscopic surgery is associated with improved urinary dysfunction compared to open surgery (14). The conduct of SPC under laparoscopy may be safer, dependent on the better visualization of the anatomical structures, and may provide higher satisfaction to the patients.

Although SPC is more invasive than TUC in terms of the risk of visceral puncture, it is associated with higher patients’ satisfaction and lower rates of UTI.

According to the literature, SPC has the potential to be comparably effective as the TUC.

Presently, however, sufficient data is not available to support surgeons’ decision on the most appropriate route of catheterization during the perioperative period, and more studies are required to solve this issue.

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Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

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