



Suprapubic catheters in colectomy

Kumiko Hongo, Seiichirou Yamamoto

Department of Surgery, Hiratuka City Hospital, Hiratuka city, Kanagawa, Japan

Correspondence to: Kumiko Hongo. Department of Surgery, Hiratuka City Hospital, 1-19-1 Minamihara, Hiratuka city, Kanagawa 254-0065, Japan.

Email: kimikh@kje.biglobe.ne.jp.

Comment on: Nagao S, Saida Y, Enomoto T, *et al.* Prospective short-term feasibility study of perioperative suprapubic catheters in laparoscopic colectomy. *Asian J Endosc Surg* 2018. [Epub ahead of print].

Received: 11 August 2018; Accepted: 27 August 2018; Published: 31 August 2018.

doi: 10.21037/ales.2018.08.03

View this article at: <http://dx.doi.org/10.21037/ales.2018.08.03>

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 is 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.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Annals of Laparoscopic and Endoscopic Surgery*. The article did not undergo external peer review.

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/ales.2018.08.03>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Open Access Statement: This is an Open Access article distributed in accordance with the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 International License (CC BY-NC-ND 4.0), which permits the non-commercial replication and distribution of the article with

the strict proviso that no changes or edits are made and the original work is properly cited (including links to both the formal publication through the relevant DOI and the license). See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

References

1. Dinneen MD, Wetter LA, May AR. Urethral strictures and aortic surgery. Suprapubic rather than urethral catheters. *Eur J Vasc Surg* 1990;4:535-8.
2. Katz G, Milgalter E, Landau Y, et al. Prevention of urethral strictures following coronary artery bypass graft surgery. *Urology* 1992;39:433-5.
3. Healy EF, Walsh CA, Cotter AM, et al. Suprapubic compared with transurethral bladder catheterization for gynecologic surgery: a systematic review and meta-analysis. *Obstet Gynecol* 2012;120:678-87.
4. Hakvoort RA, Burger MP, Emanuel MH, et al. A nationwide survey to measure practice variation of catheterisation management in patients undergoing vaginal prolapse surgery. *Int Urogynecol J Pelvic Floor Dysfunct* 2009;20:813-8.
5. McPhail MJ, Abu-Hilal M, Johnson CD. A meta-analysis comparing suprapubic and transurethral catheterization for bladder drainage after abdominal surgery. *Br J Surg* 2006;93:1038-44.
6. Takase-Sanchez MM, Thompson JC, Hale DS, et al. Suprapubic versus transurethral bladder drainage following reconstructive pelvic surgery: a comparison of patient satisfaction and quality of life. *Int Urogynecol J* 2017;28:721-8.
7. Rasmussen OV, Korner B, Møller-Sørensen P, et al. Suprapubic versus urethral bladder drainage following surgery for rectal cancer. *Acta Chir Scand* 1977;143:371-4.
8. Sethia KK, Selkon JB, Berry AR, et al. Prospective randomized controlled trial of urethral versus suprapubic catheterization. *Br J Surg* 1987;74:624-5.
9. O'Kelly TJ, Mathew A, Ross S, et al. Optimum method for urinary drainage in major abdominal surgery: a prospective randomized trial of suprapubic versus urethral catheterization. *Br J Surg* 1995;82:1367-8.
10. Ratnaval CD, Renwick P, Farouk R, et al. Suprapubic versus transurethral catheterisation of males undergoing pelvic colorectal surgery. *Int J Colorectal Dis* 1996;11:177-9.
11. Perrin LC, Penfold C, McLeish A. A prospective randomized controlled trial comparing suprapubic with urethral catheterization in rectal surgery. *Aust N Z J Surg*

- 1997;67:554-6.
12. Baan AH, Vermeulen H, van der Meulen J, et al. The effect of suprapubic catheterization versus transurethral catheterization after abdominal surgery on urinary tract infection: a randomized controlled trial. *Dig Surg* 2003;20:290-5.
 13. Ito M, Kobayashi A, Fujita S, et al. Urinary dysfunction after rectal cancer surgery: Results from a randomized trial comparing mesorectal excision with and without lateral lymph node dissection for clinical stage II or III lower rectal cancer (Japan Clinical Oncology Group Study, JCOG0212). *Eur J Surg Oncol* 2018;44:463-8.
 14. Lim RS, Yang TX, Chua TC. Postoperative bladder and sexual function in patients undergoing surgery for rectal cancer: a systematic review and meta-analysis of laparoscopic versus open resection of rectal cancer. *Tech Coloproctol* 2014;18:993-1002.

doi: 10.21037/ales.2018.08.03

Cite this article as: Hongo K, Yamamoto S. Suprapubic catheters in colectomy. *Ann Laparosc Endosc Surg* 2018;3:69.