



# Retrograde exchange of a double J stent via a cystostomy tract

Jae Heon Kim<sup>1</sup>, Dong-Erk Goo<sup>2</sup>, Yong-Jae Kim<sup>2</sup>, Yun Seob Song<sup>1</sup>

<sup>1</sup>Department of Urology and <sup>2</sup>Interventional Radiology, Soonchunhyang University Hospital, Seoul, Korea

## INTRODUCTION

Ureteral stents have been used for maintaining luminal patency in ureteral obstruction, including cases of malignant ureteral obstruction due to pelvic malignancy, since the late 1970s (1). Due to migration, encrustation, obstruction, and infection, these ureteral stents have to be removed or exchanged within 4-6 months of the initial placement (2-4). Recently, new optional stents such as metallic stents or resonance metallic stents have been introduced to maintain prolonged patency of ureters compromised by encasing neoplasm (4,5). However, conventional stents which need exchange within 4-6 months are commonly used.

Cystoscopic retrograde removal or exchange of these stents has been considered the standard method (2). However, because of the rigidity and larger diameter of cystoscopes, some patients need deep sedation or general anesthesia for pain management during the procedure (2). In addition, the cystoscopic retrograde approach is impossible in patients with distorted anatomy secondary to urinary diversion, large prostate, or urethral stricture (3).

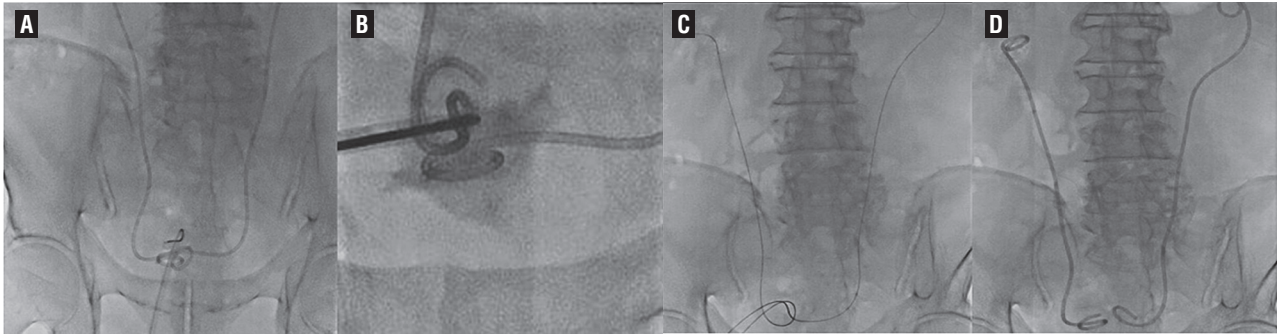
An antegrade percutaneous approach could be an alternative option for such cases, but a percutaneous nephrostomy itself could yield serious complications, especially in kidneys without hydronephrosis (3). We report a unique case in which retrograde ureteral stent exchange was successfully performed under local anesthesia and

fluoroscopic guidance using a cystostomy tract in a patient with distorted lower urinary tract anatomy. A 10-F vascular sheath (Check-Flo Performer Introducer, Cook) was introduced into the bladder under fluoroscopic guidance, which enabled the introduction of grasping forceps (Figure-1). To improve technical manipulation during the procedure, the bladder was slightly distended by injection of 100mL of diluted contrast medium in order to prevent mucosal folds from injury by the grasping forceps. Under fluoroscopic guidance, the tip of the ureteral stent was manipulated using grasping forceps, and the stent was gently withdrawn to just beyond the orifice of the cystostomy site. A 0.035-inch guide wire (Radifocus, Terumo, Tokyo, Japan) was inserted through the ureteral stent up into the renal pelvis. A new ureteral stent with the same size and diameter was advanced in a retrograde direction with a pusher.

Several retrograde methods without conventional cystoscopy have been developed (2,3,6). Successful outcomes have been reported using retrograde ureteral stent exchange under fluoroscopic guidance, but most patients in these studies were female, and only one study included male patients (6).

More studies should be undertaken to investigate the possibility of retrograde ureteral stent change via cystostomy tract in patients who do not have a previous cystostomy tract. Cystostomy is an invasive procedure, but is less invasive than percutaneous nephrostomy.

**Figure 1 - Fluoroscopic images of retrograde ureteral stent exchange via a cystostomy tract. A 10-F vascular sheath was introduced into the bladder (a). The bladder was distended by injection with 100mL of diluted contrast medium to prevent injury to the mucosal folds by the grasping forceps. The grasping forceps were introduced through the vascular sheath, and the tip of ureteral stent was manipulated with grasping forceps (b). The stent was gently withdrawn to just beyond the orifice of cystostomy site. A 0.035-inch guide wire (Radifocus, Terumo, Tokyo, Japan) was inserted through the ureteral stent up to the renal pelvis (c). A new ureteral stent was advanced in the retrograde direction with a pusher. Finally, the new ureteral stents were both placed (d).**



Retrograde ureteral stent exchange via cystostomy site is a simple and feasible technique. This method should be considered in patients who have a distorted lower urinary tract and who have a cystostomy tract.

## ACKNOWLEDGEMENT

This research was supported by Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (2010-0011678) and Soonchunhyang University Research Fund.

## CONFLICT OF INTEREST

None declared.

## REFERENCES

1. Hepperlen TW, Mardis HK, Kammandel H: Self-retained internal ureteral stents: a new approach. *J Urol.* 1978; 119: 731-4.
2. Park SW, Cha IH, Hong SJ, Yi JG, Jeon HJ, Park JH, et al.: Fluoroscopy-guided transurethral removal and exchange of ureteral stents in female patients: technical notes. *J Vasc Interv Radiol.* 2007; 18: 251-6.
3. Hausegger KA, Portugaller HR: Percutaneous nephrostomy and antegrade ureteral stenting: technique-indications-complications. *Eur Radiol.* 2006; 16: 2016-30.

4. Lang EK, Winer AG, Abbey-Mensah G, Anne R, Allaei A, Friedman F, et al.: Long-term results of metallic stents for malignant ureteral obstruction in advanced cervical carcinoma. *J Endourol.* 2013; 27: 646-51.
5. Wang HJ, Lee TY, Luo HL, Chen CH, Shen YC, Chuang YC, et al.: Application of resonance metallic stents for ureteral obstruction. *BJU Int.* 2011; 108: 428-32.
6. Ozkan O, Akinci D, Bozlar U, Ustünsöz B, Ozmen M, Akhan O: Retrograde ureteral stent exchange under fluoroscopic guidance. *Diagn Interv Radiol.* 2009; 15: 51-6.

## Correspondence address:

Yun Seob Song, MD  
Department of Urology  
Soonchunhyang University School of Medicine  
657 Hannam-Dong, Yongsan-Gu, Seoul 140-743, Korea  
Fax: +82 2 709-9378  
E-mail: yssong@schmc.ac.kr

## ARTICLE INFO

*Int Braz J Urol.* 2014; 40: 427-8

Submitted for publication:  
July 07, 2013

Accepted after revision:  
October 09, 2013