DOUBLE J STENT FORGOTTEN FOR 7 YEARS:
A CASE REPORT

Chun-Kai Chen, Ching-Chia Li, Hung-Lung Ke,
Yii-Her Chou, Chun-Hsiung Huang, and Ming-Chen Shih
Departments of Urology and Radiology,
Kaohsiung Medical University, Kaohsiung, Taiwan.

Ureteral stents are an integral part of urologic practices. Nonetheless, stents that migrate, fragment, or are forgotten pose management and legal dilemmas. We report the case of a “forgotten” stent, which migrated upward into the right renal pelvis, concomitant with a ureteral stone. The “forgotten” stent was placed 7 years previously during right ureteral stone treatment. The patient finally underwent nephroscopic stent retrieval and ureteroscopic ureteral stone removal. The final plain X-ray demonstrated no stone fragment or residual double J stent fragment. The patient withstood the procedure well and was free of symptoms thereafter.

Key Words: ureteral stent, double J stent

CASE PRESENTATION

A 63-year-old man presented with a history of a right ureteral stone, ureteroscopic stone manipulation, and an indwelling double J stent, which was implanted at another hospital 7 years previously. He visited a local medical clinic due to the feeling of constant abdominal fullness. The clinical examination revealed a foreign body located in the right renal pelvis. The patient was transferred to our hospital. A plain X-ray and right retrograde pyelography showed a coiled stent in the right renal pelvis and a right upper ureteral stone (Figure 1). Abdominal computed tomography (CT) confirmed the finding. There was no significant stone encrustation on the stent. The totally retracted double J stent was inaccessible by ureteroscopy, and, thus, percutaneous access was chosen. A percutaneous tract was made under CT guidance, and we tried to remove the double J stent by forceps under fluoroscopy. Due to the fragility of the stent, fragmentation occurred and it was difficult to remove all fragments. The patient successfully underwent ureteroscopic removal of the upper ureteral stone and nephroscopic removal of the residual stent fragments the next day. The final plain
X-ray demonstrated the new double J stent in the right collecting system with no stone fragment or residual double J stent fragment identified. After the procedure, the patient was free of symptoms and currently remains so.

**DISCUSSION**

Indwelling ureteral stents are an integral part of urologic practices. Ureteral stents have a diverse role in the management of urolithiasis, genitourinary trauma, renal transplantation, genitourinary oncology, genitourinary reconstructive surgery, and obstructive uropathy. Since the introduction of the double J ureteral stent in 1978 [1], many improvements have been made in stent composition and design, but complications were encountered frequently.

El-Faqih et al reviewed 290 patients who had stent-related complications; they found encrustation in 76%, stent migration in 3.7%, infection in 6.7%, and fragmentation in 0.3% [2]. Monga et al reported on 31 patients, of whom 22 had “forgotten” stents (indwelling for > 6 months) and nine had migrated stents. Of the forgotten stents, 15 were calcified, 10 were fragmented, and three were calcified and fragmented [3]. The other complications induced by ureteral stents included flank pain, irritative urinary symptoms, culture-positive urinary tract infections (UTIs), and febrile UTI.

To our knowledge, this report details the longest duration of a “forgotten” stent, which was indwelling for 7 years, without significant stone encrustation on the stent (Figure 2). Furthermore, it is rare that the “forgotten” stent migrated upward and was totally retracted into the renal pelvis.

Stent migration, fragmentation, and encrustation are the trilogy of complications associated with indwelling ureteral stents. Degradation of stent polymers and hardening of polyethylene and polyurethane can lead to fragmentation if a stent is left in place longer than 6 months. Encrustation of ureteral stents is often associated with alkaline urine and UTI, with struvite and calcium phosphate deposits predominating. Andriole et al reported a 10% incidence of stent obstruction secondary to encrustation in a series of 87 patients in whom the indication for stent placement was predominantly noncalculous disease [4]. Encrustation occurs primarily on stents indwelling for more than 2 months. Furthermore, stents placed in patients with known urinary calculous disease may be at a higher risk for encrustation. Spirnak and Resnick reported a series of five patients with calculous disease in whom the ureteral stents calcified as early as 2 weeks after insertion [5].
Management of complicated stents requires coordinated use of the latest in medical, lithotripsy, and endourologic techniques, or open surgery. Dissolution of struvite and carbonate apatite calcifications on ureteral catheters and ureteral stents using oral acetohydroxamic acid or hemiacridrin irrigation has been reported [6]. Lupu et al described SWL as the noninvasive procedure of choice for calcified ureteral stents [7]. SWL successfully fragmented calcifications on the renal end and ureteral segment of the stent, but electrohydraulic lithotripsy was necessary to fragment calcification on the bladder end. Smet et al successfully fragmented calcifications on both ends of a ureteral stent by applying SWL to the bladder end of the stent, with the patient in a prone position, followed by SWL to the renal end, with the patient in a supine position [8]. Due to the advent of surgical devices, endourologic techniques are used to retrieve stents more frequently. The use of a Fogarty catheter and Dormia stone basket have also been reported [9, 10].

Due to the rare location of the stent in our patient, it was difficult to retrieve the stent completely using a retrograde ureteroscopic procedure; thus, a percutaneous nephroscopic technique was chosen. We finally removed the stent completely using this method. LeRoy et al also reported percutaneous retrieval of complicated ureteral stents [11]. They recommended this approach over the retrograde approach for patients with ureteral strictures, significant fragmentation, or calcified stent remnants in the renal pelvis [11].

Several measures are recommended to prevent complications associated with stent placement. Accurate length and optimum placement of stents should minimize stent migration. Timely cystoscopic removal or exchange of ureteral stents should minimize calcification and fragmentation. Early exchange may be prudent in patients prone to stone formation. Prophylactic antibiotic therapy may decrease infected stone encrustation.

In our patient, the reason for the “forgotten” stent was that the patient did not come back for regular clinical examinations. To prevent this situation, patients should be reminded of the presence of an internal stent that could lead to problems if left indwelling for a prolonged period of time. Moreover, a computerized registry of stent placement may be used to alert the urologist when the stent must be removed.

REFERENCES