**Case report**

**Spontaneous fragmentation of a double J ureteral catheter in a patient with a single anatomical kidney**

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**Abstract**

Double J ureteral catheters have become a fundamental practice in endo urology. However, their use is not without consequences. Fragmentation is a rare and dreaded complication, only a few sporadic cases have been reported in the literature. We report a case of fragmentation of a double JJ ureteral catheter in a 70-year-old patient who underwent a silent kidney nephrectomy of lithiasic origin. He had been operated on for a JJ catheter rise two years earlier for obstructive renal failure of lithiasic origin, and then lost to obstruction. He consulted following the emission of the ends of his double J ureteral catheter and calculus during urination. The radiographic assessment performed showed a JJ ureteral catheter fragmented into several pieces. Therapeutic management consisted in an extraction of the fragments of the JJ by ureteroscopy.

**Key words:** urolithiasis, ureteral catheter JJ, complication, fragmentation, endo urology

**INTRODUCTION**

Double J ureteral catheters have become one of the most popular procedures in urology. There are different indications for their use. For some reasons, they may be neglected for a long time despite their importance. A forgotten or neglected JJ ureteral catheter has its complications such as encrustation, immigration, urinary tract infection and fragmentation (1). Fragmentation is rare and is the most feared complication (2). We report a case of a two-year neglected double JJ ureteral catheter fragmentation in a 70-year-old patient who underwent a lithiasis mute kidney nephrectomy. Management was endoscopic, extraction of the JJ fragments by ureteroscopy.

**CASE REPORT**

Mr. N. F., 70 years old, low grade, no comorbidity, with a history of nephrectomy on lithiasis mute kidney. He was operated with a JJ probe for obstructive renal failure on 7 mm lithiasis of the pelvic ureter. Lost from sight for 2 years (after the JJ catheter was inserted), he presented with stones and fragments of JJ (Figure 1). Clinically, the patient was conscious, hemodynamically and respiratory stable. The temperature was 37. 4° C. Presence of a scar from the right lumbotomy (nephrectomy sequelae) with left lumbar tenderness. Renal function was 23 mg/l with clearance at 26.7. Radiological evaluation (urinary tree without preparation and uroscan) revealed a double J ureteral catheter fractured into 3 fragments (Figure 2). Extraction of the fragments was done by ureteroscopy.

**DISCUSSION**

Ureteral stents have been widely used for more than two decades with different indications. Due to the widespread use of ureteral stents, the number of complications has increased, including stent migration, encrustation, stone formation and fragmentation (3). Of all complications, fragmentation of ureteral stents has been reported sporadically and is considered rare (4) and is the most feared complication of JJ catheters (2). In a series of 290 patients, El-Faqih et al. reported that fragmentation was observed in 0.3% (5). We report a case of two years of neglected double JJ ureteral catheter fragmentation in a 70-year-old patient with a history of nephrectomy on a lithiasis mute kidney.

The main risk factors for JJ catheter complications are low education, catheter duration, infections, chronic kidney disease, lithiasis, congenital and metabolic abnormalities, and malignant ureteral obstruction due to hyperuricosuria chemotherapy (6). A few factors were noted in our patient: low level of education, duration of catheterization, lithiasis.

 Numerous mechanisms that can cause fragmentation of double J ureteral catheters were mentioned. The most common is infection. Depolymerization occurs on the material following infection. Another mechanism is the aging of the stent. A failure of the mechanism due to aging may develop and the stent may become brittle instead of flexible (7). Ideal biomaterials include biological inertia, chemical stability in urine, resistance to infection and encrustation, long-term urine flow, stability, freedom from discomfort and affordability (8).

Low back pain, symptoms of bladder irritation and fever are signs of early complications associated with polyurethane ureteral stents. Late complications, such as encrustation, infection, and fragmentation, are more troublesome in terms of management (9). Spontaneous fragmentation and excretion of fragments in the urine is extremely rare (10). The main symptomatology prompting our patient to consult was stenturia. Low back pain was noted during the physical examination. Beyond the clinical presentation, an alteration of renal function may occur, as in our case.

Senol et al recommend the systematic performance of the CT scan in all patients with forgotten or neglected stents (11). The CT scan was performed in our patient. The CT scan allows a better evaluation of the urinary system and allows to define an operative approach.

The management of neglected or forgotten double J-tubes can be long, difficult, complex, risky and costly (12). Various combinations of endourological methods have been reported in the literature. However, there are no algorithmic approaches in urological guidelines for forgotten stents, which means that their treatment can be challenging for the urologist (11). In our case, the therapeutic management was by endoscopic, ureteroscopic extraction of the fragments.

**CONCLUSION**

Complicated double J ureteral catheters can pose a real challenge to the urologist. Their insertion should not be considered as an innocuous procedure. Their indication must be well thought out. Patient education and a reminder system are important to avoid this type of complication which can cause morbidity and mortality.

**DECLARATIONS**

**Contributions of the authors**

All the authors contributed substantially to the design and production of this article.

**Availability of data and materials**

Not applicable

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**Conflicts of Interest**

All the authors have declared that there is no conflict of interest.

**Ethical Approval and Consent to Participate**

Not applicable

**Consent to publication**

Not applicable

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**Figure 1**: fragments of double J ureteral catheter and calculus expelled during urination



**Figure 2:** Unprepared urinary tree and uro-sanner showing a fragmented and biodegraded double J-tube

