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Case Report

Severe Encrustation of a Forgotten Double-J Ureteral Stent after 12 Years: A Rare Urological Case Report

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ABSTRACT:

Background and Objectives: Forgotten Double-J (DJ) ureteral stents can cause severe complications like encrustation, stone formation, infection, and renal impairment. Encrustation risk increases significantly with longer indwelling times. Here, we present a case of severe encrustation of a forgotten Double-J ureteral stent that had become challenging for surgeons.

Presentation of Case: A 29-year-old male presented with a one-month history of right flank pain and burning micturition. He had undergone a right open nephrolithotomy 12 years prior, during which a DJ stent was placed and was forgotten. Imaging revealed a small right kidney, moderate hydronephrosis, and a heavily encrusted DJ stent with associated renal calculi. He was successfully managed using percutaneous nephrolithotomy (PCNL) and ureteroscopic lithotripsy to achieve complete stone clearance and stent removal. The postoperative period was uneventful.

Discussion: Double J Ureteral stents are mostly utilized in urologic procedures. While long-term stent retention can lead to severe complications like encrustation and renal impairment. Our case demonstrates that even a decade-long forgotten stent can be safely as well as effectively solved using a combined minimally invasive endourological approach (PCNL and URS) rather than open surgery.

Conclusion: Heavily encrusted Double-J (DJ) stents retained for over a decade can be successfully managed using minimally invasive endourological techniques. Regular follow-up and applying stent-tracking systems are essential to prevent such complications.

Key words: Double-J ureteral stent; Encrustation; Forgotten; Nephrolithotomy; Hydronephrosis

INTRODUCTION

Double-J (DJ) ureteral stents are widely used in urological practice. They play an important role in maintaining urinary drainage, particularly in patients with ureteral obstruction, urolithiasis, ureteral injury, and following reconstructive procedures. Complications such as infection, migration, fragmentation, hematuria, and encrustation may occur when stents are retained for a prolonged duration [1]. A study involving 1,292 patients reported that encrustation occurred in more than 80% of forgotten stents, making it the most common complication [2]. The degree of stent encrustation is strongly associated with the duration of indwelling time [3,4]. Here, we present a case of a severely encrusted forgotten DJ ureteral stent retained for 12 years [5].

CASE PRESENTATION

A 29-year-old male patient presented to our out-patient department with intermittent right flank pain and burning micturition for one month which was not associated with fever, chills, nausea, vomiting, abdominal pain and altered bowel habits. He had a history of cystolithotomy sixteen years back and open nephrolithotomy of the right side twelve years back with a right-sided DJ stent in situ. The patient also had a history of urosepsis for which he had been admitted in another center. Abdominal and pelvic ultrasonography (US-KUB) revealed right kidney small in size measuring 6.5 x 3.2 cm with DJ stent in-situ and there was a calculus measuring 15.8 mm noted at pelvis of right kidney with moderate hydronephrosis. X-ray KUB (Fig. 1) revealed a right-sided DJ stent extending from renal pelvis to the urinary bladder which was forgotten for 12 years post ureteric stone treatment. The whole stent was covered with a thick layer of encrustation most prominent around the proximal coil and distal end. These findings were confirmed using CT IVU scan (Fig. 2).

Fig. 1. X-Ray Kidney-Ureter-Bladder (KUB) revealed a forgotten right sided Double J stent for 12 years extending from renal pelvis to the urinary bladder and whole stent was covered with a thick layer of encrustation most prominent around the proximal coil and distal end.

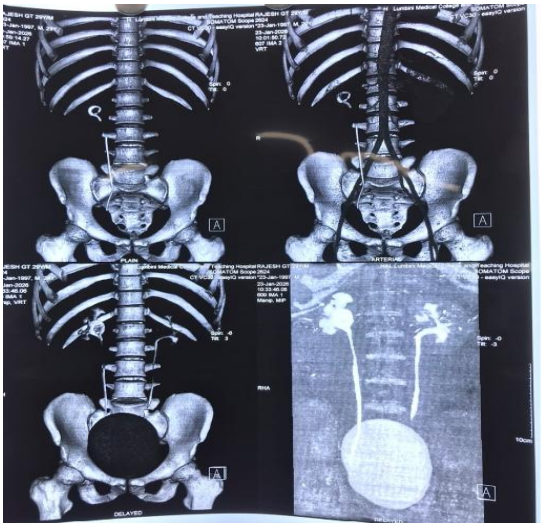

Fig. 2. CT IVU shows small right kidney with moderate hydronephrosis, retained long-standing DJ stent with fragmentation.

Preoperative laboratory examinations revealed a total leucocyte count of 6,300 per cu mm. Urine microscopy revealed pus cells (4-6 per high-power field) and absence of RBCs with alkaline urine. The levels of serum creatinine (142 µmol/L), uric acid (420µmol/L), and serum calcium (2.8 mmol/L) were found to be elevated. In this case, we decided to perform right Percutaneous Nephrolithotomy (PCNL) with removal of forgotten DJ stent and reinsertion of new DJ stent on same side and semirigid ureteroscopy with pneumatic laser lithotripsy was used for encrusted stent.

Under general anaesthesia, the patient was placed in the lithotomy position. Aseptic precautions were maintained, and cystoscopy was performed. The distal end of the retained right DJ stent was visualized within the urinary bladder and was found to be heavily encrusted there after guidewire was negotiated alongside the stent (Fig.3).

After that, the patient was repositioned into the prone position. Under fluoroscopic guidance, percutaneous access to the right pelvicalyceal system was performed through the posterior lower calyx then dilatation of tract was done, and an Amplatz sheath was placed. Nephroscopy revealed heavy encrustation which involve the proximal coil of the DJ stent along with associated renal stone (Fig.4).

Fig.3. The distal end of the retained right DJ stent visualized within the urinary bladder and was heavily encrusted with stone.

Fig. 4. Shows heavy encrustation involving the proximal coil of the DJ stent along with associated renal stone

Stone fragmentation was performed using pneumatic lithotripsy, and stone fragments were extracted. The encrustations

surrounding the proximal coil were completely cleared, and finally the retained right DJ stent was removed under fluoroscopic guidance. A complete nephroscopic examination was done in order to confirm stone clearance with no significant residual fragments. After that, a 6 Fr × 26 cm right DJ stent was inserted over the guidewire, with appropriate positioning of both coils confirmed via fluoroscopy. Meticulous hemostasis was maintained, and a nephrostomy tube was placed. Sterile dressing was applied. The post-operative period was uneventful; the nephrostomy tube was removed on postoperative day six and the patient was put on antibiotic therapy. The patient was discharged on the seventh post-operative day with a Foley's catheter in situ in order to follow up in surgical out-patient department after 2 weeks for Foley's catheter removal and after 3 weeks for right DJ stent removal.

DISCUSSION

Double-J (DJ) ureteral stents are widely utilized in urological practice. Although significant improvements have been made in stent composition and design, they are still associated with morbidity in approximately 80% of cases [5]. Monga et al. [6] reported 22 patients with forgotten DJ ureteral stents retained for more than six months. The reported complications included stent migration in 40.9% of patients, calcification in 68%, fragmentation in 45.5%, and fragmentation with calcification in 13.6% [6]. In our case, the DJ stent had remained in situ for 12 years, resulting in extensive encrustation involving both the proximal and distal coils, making it one of the longest retained stents reported in the literature.

Double-J (DJ) stents may act as a nidus for bacterial colonization, biofilm formation, and crystallization, thereby promoting urinary tract infections, encrustation, and renal impairment [7,8]. Our patient presented with right flank pain, dysuria, hydronephrosis, and a heavily calcified stent associated with renal stone formation. Similar findings have been reported in previous studies, where forgotten stents served as a nidus for stone formation and impaired renal function [7]. The elevated serum creatinine level and the small-sized right kidney observed in our patient likely reflected long-standing urinary obstruction and recurrent urinary tract infections.

Aboutaleb et al. [9] reported histopathological changes in the urinary bladder associated with temporary DJ stent placement. Cystitis glandularis, cystitis cystica, and Brunn's nests were observed predominantly in patients whose stents remained in situ for more than three months [9]. The management of severely encrusted DJ ureteral stents depends on the location and extent of encrustation. Current treatment strategies favor minimally invasive endourological techniques, including cystolitholapaxy, ureteroscopy (URS), retrograde intrarenal surgery (RIRS), percutaneous nephrolithotomy (PCNL), and, in selected cases, combined approaches [10].

Our case highlights the severe consequences of prolonged DJ stent retention and demonstrates that even heavily encrusted stents retained for more than a decade can be managed successfully using minimally invasive endourological techniques. Therefore, proper patient counseling, regular follow-up, and implementation of stent-tracking systems are essential to prevent such complications in the future.

CONCLUSIONS

Forgotten Double-J (DJ) ureteral stents may lead to severe complications, like encrustation, stone formation, infections, migration of stent as well as renal impairment. Our case demonstrates that even a DJ stent retained for 12 years can be successfully managed with minimally invasive endourological techniques. Regular follow-up as well as stent-tracking systems play an important role in order to prevent such complications

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