

A forgotten double J stent with encrustation leading to pelvi-ureteric obstruction: A case report



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ABSTRACT

Double J (DJ) ureteric stents are widely applied in urological operations, they maintain patient's urinary system postoperatively, thereby accelerating recovery. Prolonged stent insertion is associated with complications. A 38-year-old woman presented with hematuria, right flank pain, and urinary tract infection. She underwent renal calculi removal 8 years ago. KUB radiograph revealed an indwelling DJ stent with vesical calculus and pyelonephritis. Ultrasound revealed a large bladder stone with mild right hydronephrosis. Computed tomographic (CT) urography revealed a DJ stent encrustation and further formation into core of the bladder stone. Cystolithotomy was performed, vesicle calculi retrieved. At 4 weeks, the patient presented with a right-side flank pain for which patient was evaluated with a contrast-enhanced CT urography which revealed a pelvi-ureteric junction obstruction with hydronephrosis. A pyeloplasty was performed and DJ stent was placed in situ, to be retrieved at 6 weeks. With improved biomaterials, design and technological improvements of DJ stents, patient's discomfort is greatly reduced. As a result, DJ stents got left in place for a longer duration of time, and therefore high incidences of forgetfulness, retained DJ stents. Encrustation, however, is frequently encountered. Patient factors such as low education and socioeconomic status and patients living in far off rural places also contribute to forgotten indwelling stents. Authors recommend placement of DJ stents after pyeloplasty for treating pelvi-ureteric junction obstructions following long-term retained stents. Patient counseling, education, and strict follow-up should ensure a timely stent removal and improved patient safety. Effective patient counseling and awareness reduces incidences of forgotten indwelling stents and patient-related complications.

Key words: Encrustation; DJ stent; Forgotten; Bladder stone; Complications; Urology

INTRODUCTION

Double J (DJ) ureteric stents are widely applied in urological operations, they maintain patient's urinary system postoperatively thereby accelerating recovery.¹ Recent advancements in stent design and materials have contributed to their widespread use. Although, stenting is performed in ureteral obstruction, it is also done prophylactically to mitigate the risk of ureteric obstruction, stricture formation, and colic symptoms,

following various urological and non-urological procedures.²

A timely removal of the DJ stent is crucial as a prolonged ureteric stent insertion has been linked to bacterial colonization and encrustation, leading to urinary tract infection, obstruction, hematuria, and stent-related issues such as malposition, migration, and fragmentation.³ A timely DJ stent removal can prevent all such problems, thereby improving patient's overall morbidity.

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Authors report a case of woman with immense flank pain, who incidentally was found to have a 4.2 cm bladder stone. She underwent a successful removal of the bladder stone and DJ stent but later presented with a pelvi-ureteric junction obstruction and hydronephrosis. This report highlights the complications of prolonged indwelling DJ stent and clinical picture.

CASE REPORT

A 38-year-old woman was referred to the urological department's outpatient clinic. She reported having intermittent hematuria, right flank pain, and a series of lower urinary tract symptoms for 3 weeks before the current presentation. On admission, she was afebrile, and her vitals were stable. The physical examination unremarkable for tenderness around the right flank region and no routine biochemical abnormalities were detected.

She experienced pain over 6 months but increased over 1 week before presenting to hospital. The pain was insidious in onset and progressive in nature, colicky, radiating to the inner thigh associated with burning micturition. On and off fever which got relieved with medications over 1 week.

Urine analysis revealed elevated white blood cells (65.5/ μL) and red blood cells (1778.2/ μL). Eight years ago, she underwent renal calculi removal at a local hospital and had irregular follow-up. One DJ stents was implanted following the procedure. Her post-operative course was uneventful. Her surgical scar over right iliac fossa was healed and healthy, had tenderness over right side renal angle. The patient underwent a series of radiographic investigations. The KUB radiograph revealed and indwelling DJ stent with vesical calculus at the distal end with pyelonephritis (Figure 1).



Figure 1: KUB radiograph: Indwelling catheter with encrustation and vesicle calculi

Ultrasound revealed mild right hydronephrosis, generally thickened bladder wall and a large bladder stone (maximum length 4.2 cm, diameter 2.8 cm). Computed tomographic (CT) urography indicated a hyperdense tubular object from the distal ureter to the bladder, leading to the suspicion of DJ stent encrustation and further formation into the core of the bladder stone, accompanied with the right hydronephrosis, and cystitis.

Under general anesthesia, the patient was placed in the lithotomy position. Pre-operative prophylactic antibiotic (amoxicillin clavulanate potassium, 1.2 g) was administered intravenously. Cystolithotomy was performed. A large bladder stone connected to an encrusted DJ stent protruding from the right ureteric opening was identified and removed. Hospital stay and early follow-up was uneventful.

At 4 weeks post removal surgery, the patient presented with a right-side flank pain. The patient was evaluated with a contrast enhanced CT urography which revealed a major pelvi-ureteric junction obstruction with hydronephrosis (Figures 2a, b and 3). The findings were explained to the patient. A surgical procedure was planned.

The patient was operated; an Anderson-Haynes dismembered pyeloplasty was performed and a DJ stent was placed (Figures 4 and 5) which was removed after 6 weeks. Surgical scars healed and post-operative course was uneventful.

DISCUSSION

Since introduction for clinical use, DJ ureteral stents are widely used in urological practice establish or improve drainage in cases of extrinsic or intrinsic obstruction of

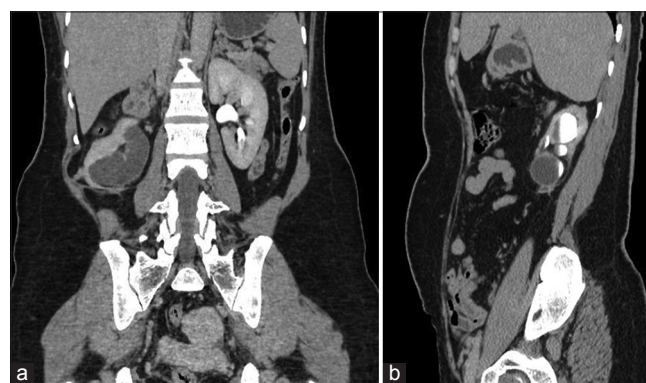


Figure 2: (a and b) Post-contrast computed tomographic urograms of the right pelvicalyceal system and hydronephrosis of the right with no contrast uptake in the right pelvi-ureteric junction (coronal) contrast-enhanced computed tomographic urogram: Contrast uptake (5 min film) by cortex however no contrast beyond pelvi-ureteric junction (sagittal)



Figure 3: Contrast-enhanced computed tomographic urogram: Contrast uptake (5 min film) by cortex however no contrast beyond pelvi-ureteric junction (3D Reconstruction)

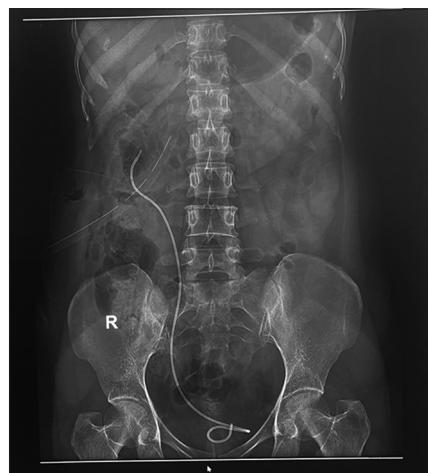


Figure 5: KUB radiograph: Double J stent placement following dismembered pyeloplasty

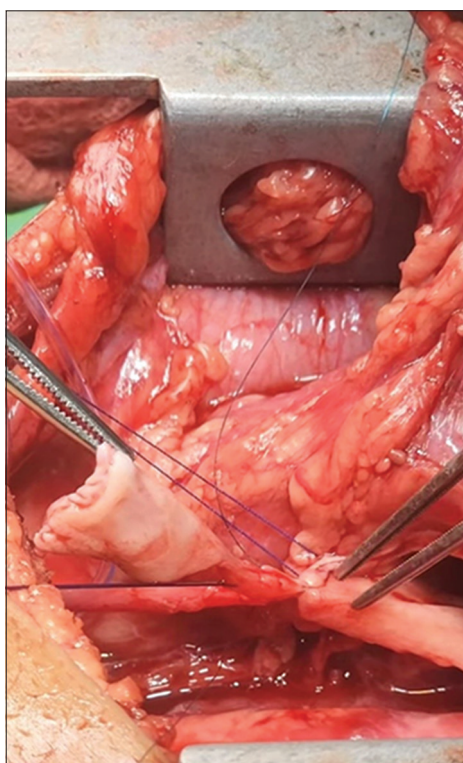


Figure 4: Clinical picture (intraoperative) – ureter with pelvi-ureteric junction

urinary passage and also placed after iatrogenic ureteric injuries and prophylactically in complex urinary tract reconstructive surgeries. With improved biomaterials, design, and technological improvements, patient’s discomfort is greatly reduced.

As a result, DJ stents got left in place for a longer duration of time, and therefore high incidences of forgetfulness, retained DJ stents. These forgotten ureteral stents can lead to stent migration, stent occlusion, breakage, encrustation,

and stone formation.⁴ Encrustation, however, is frequently encountered despite stent design modifications and material advancements.

Patient factors such as low education and socioeconomic status and patients living in far off rural places also contribute to forgotten indwelling stents.⁵ These patients mostly report to hospital only when serious clinical problems arise. Often presenting with complications, they present a challenge to treating clinicians. Unfortunately, these patients constitute the group with high morbidity, hospital admissions, and re-surgeries.

Authors recommend placement of DJ stents after pyeloplasty for treating pelvi-ureteric junction obstructions following long-term retained stents. Patient counseling, education, and strict follow-up should ensure a timely stent removal and improved patient safety. Maintaining a registry at local and national level will ensure a timely check on patient’s nearing the user defined “end of life” and maintain data on insertion and lifespan of ureteric stents.

CONCLUSION

The use of ureteric stents is still evolving and complications with their use are well known; the specter of forgotten ureteric stent remains a challenge to all clinicians. Comprehensive patient follow-up and tracking patients nearing stent removal are important steps in improving patient safety. Effective patient counseling and awareness reduces incidences of forgotten indwelling stents and patient-related complications.

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