

Combined endoscopic approaches in management of complicated forgotten double J stent: A case report

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Abstract

Forgotten Double J (DJ) ureteric stent with encrustation is a source of morbidity and unrequired admission. It is prevalent due to a lack of patient education and follow-up in third-world countries like Nepal. A case is reported of 30 years gentleman who had underwent right pyelolithotomy for large staghorn calculus and placement of DJ stent after surgery. The patient presented with encrusted, retained DJ stent which was managed with endoscopic combined intrarenal surgery with retrieval of the forgotten DJ stent.

Key words: Case report; Cystolithotripsy; Encrusted double j stent; Forgotten double j stent; Renal stone.

INTRODUCTION

Ureteric stent is a rigid, permeable, hollow, circular cylinder lying coaxially inside ureter with curved ends preventing cranio-caudal migration.¹ Ureteral stents are used prophylactically to prevent ureteral obstruction after renal stone surgeries.

Complications of forgotten double-j (DJ) stent are discomfort, encrustation, migration, stone formation, renal failure; managing them requires meticulous use of endourological techniques and lithotripsy.² With advent of supine percutaneous nephrolithotomy (PCNL), endoscopic combined intrarenal surgery (ECIRS) can be used in same setting without repositioning the patient for holistic management in stent removal. Incidence of a forgotten stent is related to poor patient compliance, lacking proper counseling, and follow-up.³

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CASE REPORT

A 30-year-old gentleman presented in the urology clinic of Kathmandu Medical College Teaching Hospital, Sinamangal, Kathmandu, Nepal with right lower abdominal pain and lower urinary tract symptoms for two weeks. However, there was no history of fever, haematuria. The patient had a history of right pyelolithotomy for right staghorn calculus two years back. On imaging, X-ray Kidney, Ureter, and Bladder (KUB) show retained Ureteric stent with encrustation of stone in the bladder lumen and renal pelvis with right renal stone (Figure 1).

Non-contrast computed tomography (CT) scan of the abdomen and pelvis showed right renal stones with retained DJ stent with encrustation thickness up to 4.1 mm with a distal portion of the stent in the urinary bladder.

On examination, patient had no positive clinical finding. The laboratory investigations showed an increased total leukocyte count of 11,400/mm³. Other blood parameters like serum electrolytes, urea 20 mg/dl, creatinine 0.7 mg/dl, haemoglobin 12.7 gm/dl, and platelet count 387,000/mm³ were normal, including urine routine microscopic examination and urine culture. After educating the patient on risks, benefits, and management alternatives, consent was taken and planned for the surgical procedure.

Due to encrustation of the stent at renal pelvis, the stent could not be easily removed with cystolithotripsy and ureteroscopic lithotripsy. Supine mini percutaneous nephrolithotomy (PCNL) with the patient in Barts Flank free modified lithotomy position (figure 2) was

done with laser and pneumatic lithotripsy to break the encrustations at the renal pelvis and upper part of DJ stent was retrieved from the PCNL and the remaining part was retrieved via ureteroscopy (Figure 3).

The stent along with the encrustation was removed in same setting, without re-positioning of the patient. The intraoperative and post-operative period was uneventful and the patient was discharged on second post-operative day after counselling and educating on the complication of forgotten DJ stent like: stent discomfort, stent encrustation, stent migration, stone formation, renal failure, and mortality and the need for timely removal. Patient was discharged home with antibiotics and analgesics. He was arranged to follow-up after four weeks for DJ stent removal.

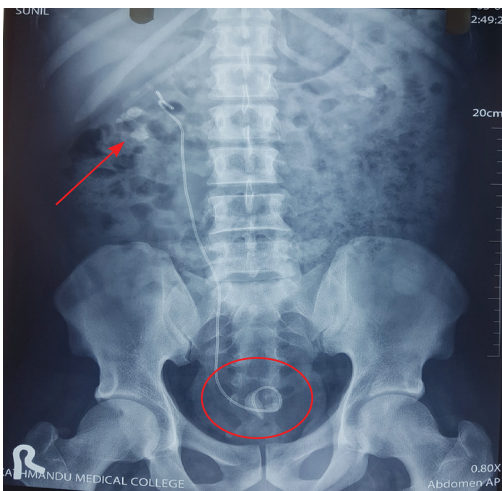


Figure 1 : Kidney, Ureter, and Bladder X-ray with retained encrusted double j stent and nephrolithiasis right



Figure 2: Barts flank free modified lithotomy position

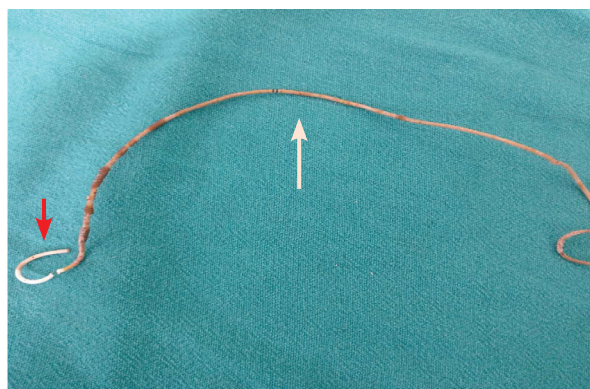


Figure 3: Encrusted double j stent

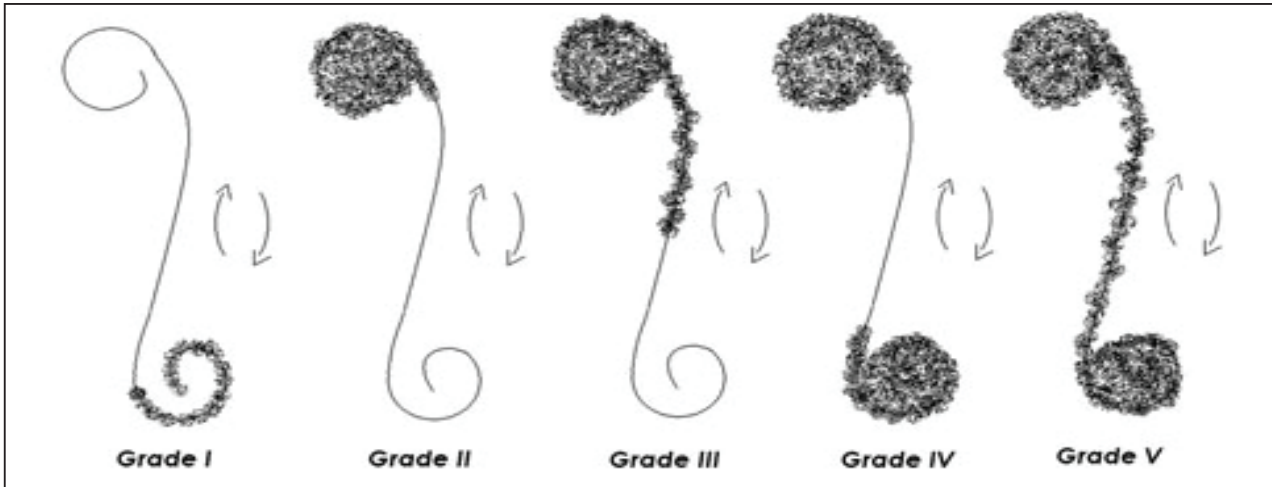


Figure 4: Forgotten, encrusted, calcified classification for forgotten double j stent

Table 1: Forgotten, encrusted, calcified classification ureteral stents grade and management modality

Grade	Definition	Management
Grade I	Minimal linear encrustations along either of the pigtail portions of the indwelling ureteral stent	Cystolithotripsy
Grade II	Circular encrustation completely encasing either of the pigtail portions of the indwelling ureteral stent.	
Grade III	Circular encrustation completely encasing either of the pigtail portions as well as linear encrustation of the ureteral aspects of the indwelling ureteral stent.	Mini/Standard PCNL +/- Antegrade URS
Grade IV	Circular encrustations completely encasing both of the pigtail portions of the indwelling ureteral stent.	
Grade V	Diffuse and bulky encrustations completely encasing both of the pigtail and ureteral portions of the indwelling ureteral stent.	PCNL + FURS (ECIRS)

DISCUSSION

Forgotten DJ stent with encrustation is a serious urological burden for not only the patients but also the treating urologist. DJ stent is termed forgotten if the stent is indwelling for time period of more than six months if not intended by the treating surgeons.³ The causes for forgotten stents are usually inadequate counselling to the patient regarding the removal of stent, low socio-economic background, poor compliance, and literacy rate.⁴

Stent encrustation and renal calculi formation are most common complications of retained DJ stent. The rate of ureteral stent encrustation was 26.8% within six weeks, 56.9% between 6-12 weeks, and 75.9% over 12 weeks.⁵ Indwelling ureteric stents provides a surface for bacterial colonisation and biofilm formation and this biofilm layers helps in encrustation of the outer as well as the inner surface of the stent and provides an environment for the growth of the micro-organisms which are resistant to the antibiotics.⁶

The Forgotten DJ stent has variable presentation including irritative urinary symptoms, loin pain, haematuria, dysuria, lower urinary tract symptoms (LUTS).⁷ Forgotten DJ stent brings economic burden, health hazard and unrequired intervention to the patient and may also impair the quality of life.⁸

The management of encrusted retained DJ stent offers a formidable challenge to the urologists. There are many classifications for the retained stent which helps in further managing the case. The most used classification of forgotten DJ stent is forgotten, encrusted, calcified (FECal) classification which is based on stone size, location, and degree of stent encrustation and the management differs according to the grade of classification (Figure 4, Table 1).⁹ According to this classification, the grade ranges from 1 to 5 and the complexity of the management increased as the grading increases.

A multimodal approach should be instituted in the management of the forgotten DJ stent to use various endourological approach for management in single setting. With the advent of Supine PCNL and flexible ureteroscopy, combined approach can be used without the repositioning of the patient in the same setting for the management of he retained DJ stent with encrustation.¹⁰

A stepwise approach should be used to manage forgotten DJ stents with complications, and combined endourological procedures are almost always successful in managing these challenging cases.

CONCLUSION

The most common reason of the retained DJ stent being the inadequate counselling to the patient regarding the placement and removal of the stent for prevention, a proper counselling should be done and a stent register should be maintained. Endoscopic combined intrarenal surgery (ECIRS) helps in the safe and efficient management of the retained DJ stent with encrustation in a single setting. FECal classification provides a grading system and algorithm-based management according to the grading.

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