

Management of Forgotten Double J Ureteric Stent in a Young Male: A Case Report

Nizam Farid Chishti¹, Shahbaz Hanif², Syed Asad Ali³, Ehsan ul Haque⁴, Naeem ullah⁵, Amer Abbas⁶

^{1,3}Postgraduate resident, ²Consultant, ⁴⁻⁶Senior registrar,
Department of Urology, Federal Government Polyclinic Hospital, Islamabad

Funding Source: None

Conflict of Interest: None

Received: Oct 13, 2021

Accepted: April 19, 2022

Address of Correspondent

Dr. Nizam Farid Chishti

Department of Urology

Federal Government Polyclinic
Hospital, Islamabad, Pakistan.

nizam.farid@hotmail.com

ABSTRACT

Urologic devices called Double-J stents (DJs) are frequently used to treat urinary tract blockage. Advancement in endourology in last few decades has led to an increase in use of ureteric stents and so its related complications. Herein, we report a case of a 17 years old male patient of poor socioeconomic background from a remote village of Afghanistan, presented to our out-patient department with abdominal pain at the right flank. He had history of double J stent placement during right open pyelolithotomy 6 year before. However, no further details were available.

Keywords: Ureteric Stent. Encrustation, Forgotten, treatment.

Cite this article as: Chishti NF, Hanif S, Ali SA, Haque EU, Ullah N, Abbas A. Management of Forgotten Double J Ureteric Stent in a Young Male: A Case Report. *Ann Pak Inst Med Sci.*2022; 18(2):142-145. doi. 10.48036/apims.v18i2.443

Introduction

The double J stent offers a useful way of drainage for the upper urinary tract. It is a common surgical procedure in day to day urology. The indications of double J catheter placement include the relief of ureteral obstruction secondary to miscellaneous etiologies, maintaining satisfactory postoperative drainage, and after ureteral injuries during surgical procedures. In recent times significant advancements have been made in double J stent design and material in order to diminish complications. However, many serious complications like encrustation, stone formation, migration, and fragmentation, still occur, especially when stents are left in place for longer periods. Furthermore, a forgotten stent is very frequently complicated and poses a management and legal dilemma. Here in, we report a case of a forgotten double J ureteral stent complicated by fragmentation and stone formation at its renal pelvis and vesicle ends.

Case Report

We report a case of a 17 years old male patient of poor socio-economic background from a remote village of Afghanistan, presented to our out-patient department with right loin pain and intermittent gross hematuria from one month. The pain was persistent, radiating to supra-pubic

region, had a slow onset, moderate in intensity and was generally relieved by oral Diclofenac. An Abdomen & Pelvis ultrasonography was performed which revealed pelvi-calyceal fullness of the right kidney with a calculus measuring 7mm in the right renal lower pole major calyx, few echogenic foci and rounded loop of stent adjacent to right vesico-ureteric junction in urinary bladder.

On taking detailed history it was established that patient was not aware of Double J stent placement. During further exploration of past medical record it was revealed that he had gone through open vesicolithotomy fourteen years ago followed by an open pyelolithotomy and double J stent placement six years ago.

An ultrasonography was performed which showed pelvi-calyceal fullness of the right kidney with a calculus measuring 7mm in the right renal lower pole. Echogenic foci and rounded loop of stent were seen in bladder adjacent to right vesico-ureteric junction. A renal scan revealed right kidney function 16.95% with GFR 13.1ml/min and left kidney function 83.05% with GFR 64.1ml/min. A cystolitholipexy was then performed and the lower end of the forgotten double J stent was removed along with the encrusted stone in bladder using stone punch.^{1,2} This was followed by removal of ureteric and intra-renal fragments of double J stent using 8-Fr rigid Ureterorenoscope without any significant resistance.³ Complete stone clearance was achieved and patient was

discharged home. In light of this scenario we believe it is necessary to educate and maintain regular contact with the patient to ensure regular follow-up visits for patients with double J ureteric stent placements in order to avoid such complications in the future.

The preoperative investigations consisted of a Complete Blood Count, Urine Routine Examination, Urine Culture & Sensitivity, Serum Biochemistry, Renal Scan, Abdomen & Pelvis Ultrasonography, Plain KUB Radiograph, and Non-Contrast CT Scan Abdomen & Pelvis. We deduced that the reason for prolonged stent retention was simply due to poor patient education and non-compliance. Laboratory examinations revealed normal Total White Blood Cells Count of 7900/UI, Hemoglobin of 15.2g/Dl and Serum Creatinine of 0.8 mg/dl. Urine microscopy revealed plenty of Red blood cells and pus cells. A Renal scan revealed Right kidney renal function to be 16.95% with GFR 13.1ml/min and Left kidney function 83.05% with GFR 64.1ml/min. Non-Contrast CT Abdomen & Pelvis showed right sided Double J stent in situ with encrustation over both ends and fragmented into three parts, one inside kidney, second in ureter and third in urinary bladder causing mild hydronephrosis. No separate calculus was visualized.



Figure 1. X-ray KUB: Revealed a fragmented double J stent in situ with encrustation over both ends.

Consequently, the development of the illness and prognosis was described to the patient and legal guardian. Based on clinic presentation and imaging findings treatment decision was made followed by Anesthesiology Consultation. Patient didn't give consent for Nephrectomy as treatment option. In this case we decided to perform transurethral Cystolitholipexy with stone punch for removal of the intra-vesical part of Double J stent and Ureterorenoscopy using grasping forceps for

removing ureteric and intra-renal part of Double J stent. A PCNL (percutaneous nephrolithotomy) was also planned in case stone fragment couldn't be accessed and removed.



Figure 2. CT KUB with 3D reconstruction: Double J stent with encrustation over both ends & fragmented into three parts, one inside kidney, second in ureter and third in urinary bladder.

After performing Cystoscopy, Cystolitholipexy was performed. Vesical part of the encrusted Double J stent was broken using stone punch and fragments removed using grasping forceps. 8-Fr Rigid Ureterorenoscope was passed into right ureter, stent fragment was identified and pull out using grasping forceps in a single go without any resistance. Then Ureterorenoscope was introduced into ureter again and taken up to pyeloureteric junction where renal part of stent fragment was identified and pulled out with grasping forceps smoothly.

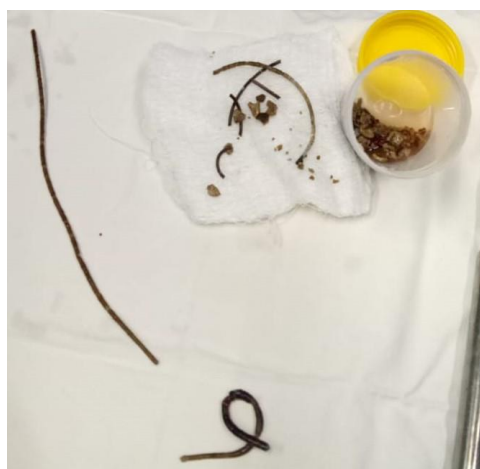


Figure 3. Specimen: containing vesical part, ureteric part and renal fragments of Double J stent along with removed encrustations.

Discussion

The double J stent has many advantages and disadvantages though it is used quite commonly placed. Not all stent placements have logical reasoning. Guidelines must be followed when deciding about placement of stent. When it is required, the patient and guardian must be informed about its complications and timely removal. A record of placed DJ stents must be maintained so that patients may be called for timely removal of stent. This way we can avoid stent related patient morbidity and legal issues. Endo-urolologic management of a forgotten double J stent is well established and there is an algorithm available. However, it should be managed endoscopically only by those who are well-trained and expert in Endo-urology. In case of severe encrustations, management modalities are more complex. Many investigators have recommended Extracorporeal shock wave lithotripsy, Laser lithotripsy, Percutaneous Nephrolithotomy¹⁰, chemical- breakdown using various lytic agents administered via a percutaneous nephrostomy tube, and open surgery¹¹ either alone or in combination with other procedures.^{5,6} With widespread usage of endoscopic instruments, a tendency to use relatively noninvasive interventions has been observed. However, in the literature, frequent usage of multimodal treatment principles is remarkable.^{5,7,8} Especially in the presence of encrusted intrarenal part of Double J, the use of PCNL⁹ and open procedures has been frequently reported.

Indications of stent placement:⁴

- Relief of obstruction (ureteric stones/benign or malignant ureteric strictures).
- Relieve pain caused by obstruction and reverses renal impairment, if present.
- Prevention of obstruction: post- Ureterscopy (routine stenting after 'uncomplicated' URS is not necessary).
- Prevention of obstruction post- ESWL.
- 'Passive' dilatation of the ureter prior to URS.
- To ensure antegrade flow of urine following surgery (e.g. pyeloplasty) or injury to the ureter.
- Following endopyelotomy (to keep the incised ureter 'open').
- Post- renal transplantation (stenting of the reimplanted ureter).

Indications for JJ stenting post- URS:

- Ureteric injury.
- Ureteric oedema at site of stone.
- Prolonged surgery

- After Ureteric dilatation
- Solitary kidney.
- Large residual stone burden.
- Raised creatinine (implying overall impaired renal function).
- Ureteric stricture.

Complications of stents:

- Stent symptoms: suprapubic pain affecting daily activities, causing sexual dysfunction and reduced work capacity.
- Urinary tract infection
- Incorrect placement
- Stent migration
- Stent blockage
- Forgotten stent

Conclusion

Forgotten stent is completely preventable complication of ureteral stents. It can be prevented by educating patient about 'mandatory' removal of double J stent, leaving a thread per urethra attached to Double J stent, using absorbable stent in special cases, using open catheter attached to urethral catheter, by proper documentation & record keeping and keeping in contact with those who have Double J stent in situ. For the treatment of forgotten Double J stent the Endo-urolologic removal under expert hands is the best choice for managing such complex cases. One should always consider the presence of severe encrustations when dealing with a forgotten stent.

References

1. Singh I: Indwelling JJ ureteral stents - a current perspective and review of literature. *Indian J Surgery*. 2003; 65: 405-412.
2. Somers W: Management of forgotten retained indwelling ureteral stents. *Urology*. 1996; 47: 431-35. [https://doi.org/10.1016/S0090-4295\(99\)80468-3](https://doi.org/10.1016/S0090-4295(99)80468-3)
3. Arvantinos E, Gravas S, Karatzas AD, et al: Forgotten, encrusted ureteral stents: A challenging problem with endourologic solution. *J Endourol* 2006,20:1045-1049. <https://doi.org/10.1089/end.2006.20.1045>
4. Saltzman B: Ureteral stents: indications, variations and complications. *Urol Clin North Am*. 1988; 15: 481-491. [https://doi.org/10.1016/S0094-0143\(21\)01594-9](https://doi.org/10.1016/S0094-0143(21)01594-9)
5. Tsai CC, Shen JT, Huang SP, et al: Use of a holmium laser to treat a forgotten double-J stent with whole stent encrustations: a case report. *Med Sci* 2009;25 (10): 567-571. [https://doi.org/10.1016/S1607-551X\(09\)70551-0](https://doi.org/10.1016/S1607-551X(09)70551-0)

6. Vanderbrink BA, Rastinehad AR, Ost MC, Smith AD: Encrusted urinary stents: evaluation and endourologic management. *J Endourol* 2008; 22 (5):905-912.
<https://doi.org/10.1089/end.2006.0382>
7. Kehinde EO, Al-Awadi KA, Tawheed A, et al: Factors affecting the fate of prolonged forgotten 'J' stents. *Scand J Urol Nephrol* 2001; 35: 222.
<https://doi.org/10.1080/003655901750292006>
8. Santin M, Motta A, Denyer SP, et al: Effect of the urine conditioning film on ureteral stent encrustation and characterization of its protein composition. *Biomaterials* 1999; 20: 1245-1251.
[https://doi.org/10.1016/S0142-9612\(99\)00026-5](https://doi.org/10.1016/S0142-9612(99)00026-5)
9. Acosta-Miranda AM, Milner J, Turk TM: The FECal Double-J: a simplified approach in the management of encrusted and retained ureteral stents. *J Endourol* 2009; 23 (3): 409-415.
<https://doi.org/10.1089/end.2008.0214>
10. Somers W: Management of forgotten retained indwelling ureteral stents. *Urology* 1996; 47: 431-435.
[https://doi.org/10.1016/S0090-4295\(99\)80468-3](https://doi.org/10.1016/S0090-4295(99)80468-3)
11. Vidhyadhar K, Deepak P: Management of forgotten double J stent and severe multiple large encrusted stones in the bladder and renal pelvis. December 2012 *Central European Journal of Urology* 65(4):238-41.
<https://doi.org/10.5173/cej.2012.04.art15>