

Case Report

Removal of a Double J Stent: Not Always a Simple Procedure

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Abstract

Double J stenting is a fundamental part of contemporary urologic practice for the prevention or management of obstruction within the upper urinary tract.

Minimal and moderate side effects of double J stent indwelling are common. However significant morbidity can be seen especially in forgotten double J stent.

We report our management of a patient with a forgotten double J stent complicated by severe encrustations, large stone formation at its bladder end, urinary tract infections and hematuria.

Radiology was mandatory to provide accurate assessment of complications associated with the forgotten double J stent and to help determining the appropriate surgical management.

Keywords

- Ureteric stent
- Encrustation
- Urinary tract infections
- Calculi

INTRODUCTION

Double J stents are self-retaining hollow tubes which drain the kidneys into the urinary bladder as first described by Finney in 1978 with a main function of bypassing ureteral obstruction [1].

With the development of endo-urology a variety of indications have made the use of double J stents routine in urology.

This widespread clinical use of double J stent is not without risk and is associated with a number of complications. Among these complications, double J stent encrustation represents the most frequent and challenging outcome.

CASE PRESENTATION

We report a case of a 64-years-old man with no particular medical history. He presented to our department with a major complaint of hematuria.

A double J stent was found to be indwelling for 2 years. Initially the double J stent was inserted for management of a painful and obstructive stone of the lumbar portion of the right ureter with an intention to perform extracorporeal shockwave lithotripsy thereafter. It seems that the patient tolerated his double J stent so well that he was lost to follow-up for two years. He returned two years later complaining about a growing right lumbar pain and hematuria.

Overall, he was in good general health without any voiding

symptoms. X-ray showed the forgotten double J stent with encrustation of its lower loop resulting in a large bladder stone (Figure 1).

Computed tomography (CT) revealed a pelvicalyceal dilatation of the right kidney probably related to double J stent obstruction and the former ureteral stone. The double J stent was encrusted in its ureteral portion with presence of two large stones at its lower loop measuring respectively 2.9×1.7cm and 4.2×2.2cm in length and 1200UH in density (Figure 2).

Urine culture revealed klebsiella pneumoniae.

After antibiotherapy, Cystolithotomy and ureterolithotomy were performed for removal of the encrusted double J stent, the former ureteral stone and the bladder stones (Figure 3).

Mucosa of the bladder was inflamed and bloody as well as that of the ureter. A large bladder incision was needed to extract the large stones that developed within the lower loop of the double J stent.

Post-operative recovery was uneventful and the patient was discharged after 4 days stent free and stone free.

DISCUSSION

Forgotten double J stents continue to occur because of poor patient compliance to the intent of stent use and instructions to return for stent removal or failure of the physician to adequately counsel the patient [2-7].



Figure 1 KUB X-ray showing encrusted double J stent.



Figure 2 Coronal computed tomography scan showing encrusted double J stent.

The oldest retained double J stent was seen in a patient after 23 years (276 months) as was mentioned in the study of Sohrab et al, [7].

Double J stents are associated with some degree of morbidity. Patients usually experience symptoms as suprapubic pain, urinary frequency and urgency, dysuria, haematuria or inability

to work [2,4].

Asymptomatic patients with a well-tolerated double J stent are more prone to neglect or to forget their stent. After holding them for many years they can develop serious complications that are time-related ranging from hematuria, stent occlusion, migration, fragmentation, encrustation, and stone formation to serious complications like recurrent urinary tract infection, urinary tract obstruction, and renal failure [2,3].

Clinical studies have shown that the prevalence of double J stent complications increases with longer indwelling times [2-4,6].

El Faqih et al discovered that encrustation occurred in 9.2% of the stents retrieved before 6 weeks and rose to 76.3% when stents were indwelling longer than 12 weeks [4].

Besides length of indwelling time a variety of factors contribute to the high rate of double J stent encrustation.

Stent composition may play a role in its encrustation but remains controversial despite the fact that in vitro studies shows that silicone stents are less likely to encrust [6].

The presence of lithogenic urine in stone-former patient clearly increases the risk of stent encrustation estimated to be nearly three times higher compared to non-stone-former patients. Thus, double J stent provides a matrix on which constituents of the urine combine to form stones [2,3,6].

Adanur et al reported that previous existence of urolithiasis

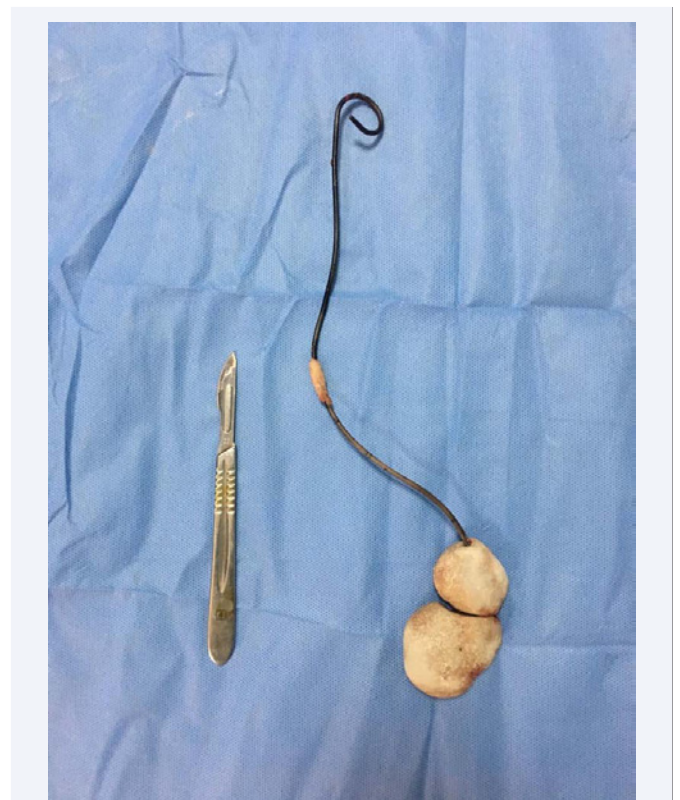


Figure 3 Encrusted double J stent with two big stones at its lower end after surgical removal.

was the prominent factor of encrustation of forgotten double J stent [8].

Presence of urinary infection helps to accelerate the process of encrustation [3].

As seen in our patient, and in most reported cases of double J stent encrustation, severe encrustation tends to preferentially occur at the renal or bladder end of the stent. This has been explained by the peristaltic "wiping" of the ureteral portion of the stent [5].

Encrustation of forgotten double J stents represents a serious problem in urology practice, especially when a large stone burden has developed. It makes removal of double J stents known to be the easiest endourology procedure challenging, time consuming, and costly due to necessity for ureteroscopy, nephroscopy or even open surgery as in our case.

Radiology, especially CT scans, plays a major role not only in monitoring patients with indwelling double J stents, but also in evaluating the severity of associated complications and in choosing the suitable way for removal of the encrusted and retained stent [5,8].

Adanur et al. reported CT to estimate stent encrustation more accurately when compared with X-ray [8].

Accurate radiological assessment and urine sterilization are imperative prior to any attempt to remove the stent due to complications related to operative intervention that can be lethal as previously reported by some authors [7,9].

Most urologists tend to avoid open surgical interventions when removing encrusted double J stents by using either one or more endo-urological approaches.

To date, no guidelines on management of encrusted double J stents are established. However, recommendations based on authors experiences offer strategies for successful management of such cases.

Sorhab et al. and Adanur et al. exposed two of the largest and recent series in management of encrusted forgotten double J stents with 28 and 54 patients respectively. They recommend tailored management according to the site and size of stone burden and a step-wise approach starting with minimally invasive procedures [7,8].

Sorhab et al., reported a mean of 1.25 procedures per patient including 17 cystoscopic, 10 percutaneous, and 2 ureteroscopic interventions, one session of extracorporeal shock wave lithotripsy, and one simple nephrectomy [7].

Adanur et al. proposed their algorithm for management of encrusted double J stents starting with simple cystoscopic stent removal under a fluoroscopic control helped by prior extracorporeal shock wave lithotripsy in a patient with minimally or moderate encrusted stents with careful attention to avoid ureteral injuries. If encrustation was only at the distal and middle portion, the stent was removed following fragmentation by laser lithotripsy. Encrustation of the upper end of the stent

was managed by retrograde intra renal surgery in case of mild encrustation or percutaneous nephrolithotomy in severe encrustation. Endoscopic cystolithotripsy or percutaneous cystolithotripsy were used for management of distal stent encrustation residing in the bladder. A combination of those endo-urological approaches were sufficient for the removal of forgotten double-J stents [8].

Singh et al. reserved open surgical interventions for removal of double J stents to severe encrustation, greater than 4 cm², after failure of less invasive endoscopic procedures [10].

Talwar et al. reported, in their small series an-open approach to provide successful stone-free as well as stent-free status with a single operative intervention in patients with significant degree of encrustation and stone burden [10].

In our case removal of the forgotten double J stent was associated with a longer hospital stay, additional imaging and laboratory explorations, additional therapeutic, greater difficulty in surgery, and a much higher cost than usually charged for simple cystoscopic stent removal. Computerized tracking system for patients with indwelling double J stents may help to reduce the incidence of forgotten stents thus avoiding associated cost, morbidity and complications.

In this case, we opted for an open approach to remove both the encrusted double J stent and associated stones in a single operative interventional procedure due to the significant encrustation of the double J stent which was greater than 4 cm², and also to minimize the number of therapeutic sessions given the poor compliance of the patient who was holding the double J stent for 2 years and our fear of our patient's lack of adherence to care.

CONCLUSION

Prevention remains the best way to avoid complications associated with forgotten double J stents by clearly communicating to the patient the presence of any internal ureteric stents, the temporary intent of their use, risks with prolonged indwelling times and by respecting exchange intervals recommended by the manufacturer.

REFERENCES

1. Finney RP. Experience with new double J ureteral catheter stent. *J Urol.* 1978; 120: 678-681.
2. Murtaza B, Alvi S. Forgotten Ureteral Stents: An Avoidable Morbidity. *J Coll Physicians Surg Pak.* 2016; 26: 208-212.
3. Abdelaziz AY, Founda WB, Mosharafa AA, Abelrasoul MA, Fayyad A, Fawzi K. Forgotten ureteral stents: Risk factors, complications and management. *Afr J Urol.* 2018; 24: 28-33
4. El Faqih SR, Shamsuddin AB, Chakrabarti A, Atassi R, Kardar AH, Osman MK, et al. Polyurethane internal ureteral stents in treatment of stone patients: morbidity related to indwelling times. *J Urol.* 1991; 146: 1487-1491.
5. Dyer RB, Chen MY, Zagoria RJ, Regan JD, Hood CG, Kavanagh PV. Complications of Ureteral Stent Placement *RadioGraphics.* 2002; 22: 1005-1022.

6. Vanderbrink BA, Rastinehad AR, Ost MC, Smith AD. Encrusted urinary stents: evaluation and endourologic management. *J Endourol.* 2008; 22: 905-912.
7. Sohrab A, Aneesh S, Sureka SK, Varun M, Nitesh P, Manoj K, et al. Forgotten Reminders: an Experience with Managing 28 Forgotten Double-J Stents and Management of Related Complications. *Indian J Surg.* 2015; 77: 1165-1171.
8. Adanur S, Ozkaya F. Challenges in treatment and diagnosis of forgotten/encrusted double-J ureteral stents: the largest single-center experience. *Ren Fail.* 2016; 38: 920-926.
9. Singh V, Srinivastava A, Kapoor R, Kumar A. Can the complicated forgotten indwelling ureteric stents be lethal? *Int Urol Nephrol.* 2005; 37: 541-546.
10. Talwar R, Benson M, Fam M, Bargman V, Patel NN. The open approach to severe stent encrustation: A consecutive case series. *Urology.* 2017; 99: e1-e3.

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