

# Retained DJ Stent : In Terms of Morbidity and Management

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## ABSTRACT

**Introduction:** As Forgotten/retained Double J stents are associated with significant morbidity and mortality, if not intervened timely. So the present research was done to study consequences, management and their potential complications of forgotten/retained DJ stents.

**Material and Methods:** We retrospectively analysed the records of patients presented to the department of urology, Nizam's Institute Of Medical Sciences-Hyderabad with forgotten or long term retention of DJ stents from January 2013 to January 2016. All cases were reviewed for age, gender, indication for insertion of DJ stent, duration of stent insertion, radiological images and surgical procedures performed.

**Results:** During a three year study period, total 30 patients reported to our department with history of forgotten DJ stents. 17 patients had severe encrustations with both renal and vesical calculus. 5 others had either only renal or vesical calculus. 4 out of 17 patients with severe encrustations patients had fracture stents and vanishing portions of stents and 4 had multiple renal calculi. A combination of CLT, PCNL, ureteroscopy, ESWL and open surgeries were done to clear the stones and extract the DJ stent.

**Conclusion:** Forgotten or retained stent is a source of severe morbidity. Pre procedural and post procedural operative counseling of the patient regarding the DJ stent is necessary.

**Keywords:** Retained DJ Stent, Fragmented DJ Stent, Encrustations, Lithotripsy

## INTRODUCTION

Double J stents are used after ureteral surgeries and for managing ureteral obstruction due to intrinsic causes such as stones, strictures and for extrinsic causes like retroperitoneal fibrosis, malignancies and congenital anatomical anomalies.<sup>1</sup> They are also placed after iatrogenic injuries to the ureter and before any complex abdominal procedure for identification and protection of the ureters.<sup>1,2</sup>

Due to their wide uses in urology and prone for complications like stone encrustation, fragmentation, secondary stone formation and recurrent urinary tract infections.<sup>3,4</sup> Forgotten / retained Double J stents are associated with significant morbidity and mortality, if not intervened timely.<sup>1,4</sup> Retained Double J stent can be treated by combination or by single procedure of extracorporeal shockwave lithotripsy, cystolithotripsy, intracorporeal lithotripsy, percutaneous nephro-lithotomy and open surgeries for retrieval of retained double J stent.<sup>1,4,5</sup>

Study was done with the aim to know the consequences, management and their potential complications of Forgotten / retained DJ stents.

## MATERIAL AND METHODS

A total of thirty patients with retained Double J stent with encrustations presented to Department of Urology, Nizam's Institute Of Medical Sciences-Hyderabad were studied between January 2013 and January 2016. Information was obtained and

analysed retrospectively for duration of Double J stent placed, presenting complaints, type of previous procedure and current procedure were recorded. The mean patient age was  $44 \pm 10$  years and the average indwelling time of the stent was  $3.5 \pm 1.06$  years. All the stents were placed elsewhere. Loss of follow-up and poor compliance were found to be the most common reasons for retained double j stents. All patients underwent thorough evaluation to know about position of stent, encrustation and associated stone by plain radiography. Intravenous Urogram has been advised in patients with encrustations in body of stent or proximal coil/ renal coil of Double J stent and as a functional study in patients with serum creatinine  $\leq 1.5$ mg/dl. NCCT abdomen was done in patients with raised serum creatinine  $> 1.5$ mg/dl. Tc99m diethylene triamine penta acetic-acid (DTPA) renogram was done for functional assessment in patients with non visualized kidney or in whom NCCT was done. Treatment decision was taken based on clinical and radiological findings. Modality of intervention used was individualized for all patients depending on radiological findings by treating surgeon. All patients had documented urine culture negative and broad spectrum antibiotic prophylaxis given for all cases. In few cases where minimal encrustation was noted on plain radiography at distal/ vesical coil of double J stent, gentle attempt was made to remove with the help of grasping forceps via cystoscopy under fluoroscopic guidance. For patients with encrustations noted in body of double J stent with more stone burden at distal coil of double J stent cysto lithotripsy done first and additional procedure by means of ureteroscopic lithotripsy was done and attempted to remove the stent gently by placing grasper via ureteroscope by positioning patient in dorsal lithotomy position. On few occasions where the double J stent failed to uncoil at proximal coil a ureteric catheter was placed adjacent to encrusted stent under vision by ureteroscopic guidance and radio opaque contrast was injected to delineate pelvicalyceal system, then the patient was placed in prone position with adequate padding and percutaneous nephrolithotomy was done to fragment the encrustations and any secondary stones if any present during procedure. In present study more than one procedure have been chosen as treatment modality of choice in few occasions depending on location of encrustations and secondary stones.

Post operatively, plain-film radiography was done to confirm the stone free and stent free status.

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## STATISTICAL ANALYSIS

Through out the study period data collected was stored in Microsoft excel 2010. The data thus collected was statistically analysed using descriptive statistics using SPSS version 14 at the end of study and presented.

## RESULTS

Total 30 patients records were analysed over the period from January 2013 to January 2016. Out of which 18(60%) were male and 12(40%) were females. Age ranged from 7 years to 63 years (Mean  $44 \pm 10$  years). Duration with stent in situ ranged from 1 year to 9 years (Mean  $3.5 \pm 1.06$  years). Presenting complaints of flank pain 11 (36.6%), dysuria 6 (20%), haematuria 6 (20%) irritative LUTS in 5(16.6) and asymptomatic in 2 (6%) amongst patients were noted. Out of 30 patients, 5(16.6) patients had CLT, 2 (6 %) patients had PCNL, 3 (9%) underwent open surgery. Out of 30 patients, 17 (56%) patients had severe encrustations with both renal and vesical calculi, 5 (16.6%) others had either only renal or vesical calculi, 4 (13%) had fracture stents and vanishing portions of stents. In present study patients were treated with multimodality of treatments. In some cases more than one procedure was done whenever necessary. 2 (6%) patients underwent PCNL, 5 (16.6%) patients received CLT and in 4 (12%) patients cystoscopy and DJ removal were done. Only 3 patients i.e. 9% needed open procedure one each with pyelolithotomy, cystolithotomy + pyelolithotomy and nephrectomy respectively. Only 4 patients presented with complications two with sepsis and others with bleeding.

## DISCUSSION

Double-J ureteral stents are commonly placed for duration of 4-12 weeks in an intend to prevent or relieve upper urinary tract obstruction and following reconstructive surgeries.<sup>1</sup> Indwelling double J stents may cause irritative voiding symptoms with flank pain i.e. stent syndrome. Since then efforts have been made to avoid ureteric stent complications like encrustations and recurrent infections.<sup>1</sup>

Lack of follow up with long term placement of double J stent and poor compliance has been proposed the common reasons for double J stent retainment. recurrent Infections / struvite stones are the usual cause of encrustation and this mandates usage of broad spectrum antibiotics prophylactically. Encrustations in distal coil/ bladder coil of double J stent, however big can be better treated with cystoscopic lithotripsy and double J stent can be fragmented to stone free using pneumatic, ultrasonic or electrohydraulic energy. Fragments can be washed out and stent can be removed by gentle attempt under fluoroscopy.<sup>6-8</sup> Encrustations over body of double J stent are rare and may require fragmentation under ureteroscopy.<sup>6</sup> Plain radiograph form the primary investigation to make out encrustations, if no obvious encrustations noted on plain radiograph then double J stent should be removed by gentle attempt under fluoroscopy.<sup>9</sup> In, most of the cases even when no encrustations visible on plain radiograph the lumen of double J stents are filled with calcified material that prevents uncoiling of proximal coil of double J stent and difficult to remove.<sup>10-12</sup> During removal of stone if patient complains of flank pain or if Double J stent is not moving one should terminate the procedure. Forcible attempt of removal of retained double J stent may sometimes cause fracture of the stent.

Incidence of complications raised with increase in duration of indwelling double J stent. so, timely intervention is needed. If indwelling time exceeds more than three months there may be invariable chances of need of additional procedure.<sup>12</sup>

In present study we have noticed that retained double J stent adds a significant morbidity like flank pain, dysuria, hematuria and recurrent urinary tract infections.

Lack of follow up and inadequate communication between surgeon and patient are main factors that are associated with double J stent retention. Patients should be counseled proper and made aware of importance of stent insertion and its timely removal / exchange.

## CONCLUSION

Retained stent is a source of infection and increases morbidity. Pre procedural and post procedural operative counseling of the patient regarding the DJ stent is necessary. Encrustation and stone formation in forgotten stents often lead to increase in morbidity and needs a challenging management.

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