

## CASE REPORT

### DJ STENT: FORGOTTEN FOR FOURTEEN YEARS

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**ABSTRACT:** Ureteral stents play a major role in a wide range of situations where urinary drainage is needed, but long standing stents lead to a variety of complications. Here we report a case of a 7 months old girl was stented with a double J stent for bilateral urethral calculi. 14 years later surgeons discover a stent fragment in left ureter with associated complications including staghorn calculi formation. An Open nephrolithotomy with stent residue removal was done.

**KEYWORDS:** Double J stent, Urinary Tract Infection. Staghorn Calculi, Nephrolithotomy.

**INTRODUCTION:** The Double-J Ureteral Stent or Pigtail Stent has been an important tool in the urological surgical practice. It is a catheter or tube placed within the ureteral lumen in a retrograde or antegrade fashion in order to maintain its patency, with a self-retaining capability due to a double coil design at proximal and distal ends that work to securely anchor the stent in the upper urinary tract (renal pelvis and upper calyx) and the bladder.<sup>[1]</sup> It thus plays a major role in a wide range of situations where urinary drainage is needed. But long standing indwelling catheters are known to cause complications.<sup>[1,2]</sup>

Here we report a case of a 7 months old girl was stented with a double J stent for bilateral urethral calculi. 14 years later surgeons discover a stent fragment in left ureter with associated complications including staghorn calculi formation. An Open nephrolithotomy with stent residue removal was done.

**CASEREPORT:** 14 yrs old female, belonging to low socio-economic status, presents with pain in lower back since 2 months, burning micturition since 2 months, increased frequency of micturition since 2 month, fever since 1 week. No history of hematuria.

Past history- When the patient was 7 months old she had history of urinary retention with abdominal distension. Patient was diagnosed with bilateral ureteral calculi and underwent bilateral endoscopic lithotripsy and double 'J' stenting.

Over the years patient kept complaining of short transient episodes of white discharge and occasional hematuria and burning micturition, which resolved spontaneously without any treatment. 10 months back, patient gives history of passing a tube-like structure in urine but was again ignored.

No significant history of receiving any other medical or surgical treatment.

2 months back patient started experiencing bilateral lower back pain, non-radiating, colicky in type, associated with burning micturition when she consulted a doctor and was diagnosed with a 'forgotten' right sided in-situ double 'J' stent (inserted when the patient was 7 months old) with a remnant of the fractured stent on the left side (the remaining half of the stent had passed in the urine 10 months back) with multiple staghorn calculi in the left pelvis. (Figure 1)

The now treating doctor cystoscopically removed the right sided stent and the patient was discharged.

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The patient presented to our hospital with the similar set of complaints with the left sided stent residue with multiple staghorn calculi in-situ. (Figure 2-3)

All blood investigations including the renal function test were normal. Urine examination revealed 10-12 pus cells with 10-12 RBCs and a growth of E. coli. The patient was posted for an open nephropylolithotomy with the stent residue removal. The patient improved post-operatively with an uneventful postoperative course.



**Figure 1: Right DJ stent in situ with left fragmented segment with Staghorn calculi**



**Fig. 2 & 3: X-ray KUB and IVP**

**DISCUSSION:** Ureteral stents play a major role in a wide range of situations where urinary drainage is needed (Table 1),<sup>[1]</sup> but long standing stents lead to a variety of complications. These complications may be of minor nature such as hematuria, dysuria, frequency, low back ache and suprapubic pain or may be more major such as vesicoureteric reflux, migration, encrustation, urinary tract infection (UTI), stent fracture and secondary vesical calculus formation.<sup>[2,3]</sup> Cases of fatality have even been reported in cases of indwelling stents.<sup>[2,4]</sup>

In order to avoid such complications, the ideal time for DJ stent removal or replacement is considered between 2 and 4 months.<sup>[5,6]</sup>

For early detection and to contain such delayed complications a computerized tracking program for removal of stents was proposed by Atheret al<sup>[7]</sup> and Joshi et al<sup>[8]</sup> also objectively evaluated the UTI symptomatology associated with indwelling stents using validated questionnaires

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(International Prostatic Symptoms Score - IPSS, International Continence Society male questionnaire, Quality of Life questionnaires, and the Bristol Female Lower Urinary Tract Symptoms questionnaire - BFLUTS). The Ureteral Stent Symptom Questionnaire (USSQ) consists of 38 items examining 6 sections: pain, voiding symptoms, work performance, sexual matters, overall general health, and additional problems.<sup>[8]</sup>

Ashutosh Niranjani et al,<sup>[9]</sup> in their article 'Enigma of Forgotten Double J Stent', reported a 'forgotten' stent in the ureter for 12 years. Prior to their citing, the available literature showed that DJ stent had been missed for a maximum of eight years and in most cases, the stent had fragmented spontaneously.<sup>[9]</sup>

But the present case is a rare presentation of a 'forgotten' stent for almost 14 years, with associated complications like stent fragmentation, UTI and subsequent development of bilateral staghorn calculi.

Ringel A. et al<sup>[10]</sup> observed that the total complication rate in 110 stented kidneys where the stents were kept in situ for different periods, was up to 32.7% and in 8.2% of the cases, the stents had migrated.

In another study, Damiano R et al<sup>[11]</sup> observed flank pain in 25.3%, encrustations in 21.6%, irritative bladder symptoms in 18.8%, hematuria in 18.1%, fever more than 104°F in 12.3% and stent migration in 9.5% of the patients. They also reported that morbidity and complications were minimal when the stent was left in situ for less than three months, but longer duration of stent retention was associated with increased frequency of encrustations, infections, calculus formation and obstruction of the stented tract.

Hao P et al<sup>[12]</sup> evaluated 2685 cases of DJ stent for different nephroureteric conditions and concluded that these stents are a safe and useful adjunct for both endoscopic and open procedures, if it was kept in situ for less than 28 days.

**CONCLUSION:** Careful monitoring of patients could exclude any possibility of a stent being forgotten at all. Although endourology has simplified the management of forgotten indwelling stents, the best solution remains prevention.

Urgent	Safety Related	Relative
Obstructive pyelonephritis	Ureteral edema	Stone burden >2 cm before SWL
Intolerable acute renal colic	Ureteral perforation	Pregnancy
Renal failure secondary to ureteral obstruction	Previous history of renal failure	Long-standing impacted stone
	Solitary kidney	Recent history of urinary tract infection or sepsis
	Transplant kidney	Passive dilation of ureteral orifice and ureter
		Prolonged endoscopic operative time
		Patients with imminent Post-operative plans (2nd look)

Table 1: Current indications for stent replacement

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