

## Forgotten DJ Stents; A Misery to the Patients

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### ABSTRACT

**Background:** DJ Stents have been in use since long for the management of ureteral obstruction. The obstruction may be due to stone, stricture, PUJ Obstruction etc. DJ Stents if kept for long time are associated with different complications like, blockage, break, migration, encrustation, stone formation etc. These long stayed DJ Stents need additional procedures for their removal like, URS, PCNL, and Pyelolithotomy etc. **Objectives:** i) to analyze the data retrospectively to see the number of patients having forgotten DJ Stents. ii) To see the level of awareness of patients regarding their DJ removal. **Study Design:** Retrospective study. **Place and duration of study:** Urology Department, Allied Hospital, Faisalabad from Jan 2011 to Dec 2014. **Materials and Methods:** Record of patients of forgotten DJ Stents for 4 years. **Results:** During

4 years period 35 patients were found to have forgotten DJ Stents and maximum duration of forgotten DJ Stents was 14 years. 41.66% patients in first group (indwell time 3-12months) were having encrustations. Overall 11/35 (31.42%) needed litholopaxy for their DJ removal and 24/35 (68.57%) needed URS and it was successful in 22/24 patients. One patient needed PCNL and one had pyelolithotomy for their removal. **Conclusion:** Patients should be stressed / counseled properly regarding its removal by telling its complication. Thread attached to the DJ stent may be left outside external urethral meatus. It must be properly documented in discharge slip. A register must be maintained to keep record of these patients and it should have their address and phone number so that they should be reminded of about their DJ removal well in time. **Key Words:** DJ Stents, Indwell time, Encrustation.

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### INTRODUCTION

Ureteric obstruction is commonly seen in urology practice. It may be due to stones, strictures, PUJ obstruction, tuberculosis, retroperitoneal fibrosis or pelvic tumors etc. If untreated it may lead to renal damage. DJ stents are usually placed in the ureter after relief of obstruction to maintain the patency of the ureter. Use of DJ stents has been found since their introduction in 1978<sup>1</sup> and in its primitive form since 1967.<sup>2</sup> DJ Stents also have complications like migration, breakage, blockage,

encrustation and stone formation especially when used for longer periods of time.<sup>3,4</sup> So these DJ stents have to be removed / replaced after 6/12 weeks.<sup>3,4</sup> In our practice we see a lot of patients coming with forgotten DJ stents and we have to adopt multiple procedures like litholapaxy, URS and stone breaking with lithoclast, PCNL and even open pyelolithotomy. All these procedures are a source of morbidity to the patients and a burden over healthcare facilities. Thus we decided to conduct this study retrospectively to see the reason of forgetting these DJ stents by the patients and to see the level of awareness of the patients about their DJ stents so that some special arrangements should be made to prevent this happening.

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## Objective of Study:

- i) To assess the complications of forgotten DJ stents and their associations with the duration of DJ stents remaining indwelling.
- ii) To see the level of awareness of patients regarding their DJ removal.

## MATERIALS & METHODS

**Design of study:** Retrospective descriptive study.

**Duration of study:** January 2011 to December 2014.

**Setting:** - Study was conducted at Department of Urology PMC/Allied Hospital Faisalabad.

**Inclusion Criteria:** All the consecutive patients having DJ Stents for more than three months duration irrespective of age and sex were included in the study and were considered forgotten.

**Exclusion Criteria:** Patients having DJ Stents of less than three month duration were excluded from the study.

### Methods:

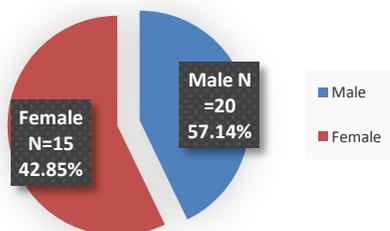
Total 35 patient's data was separated and recorded on a proforma showing their age, sex, duration of indwell, presenting complaints, purpose of DJ Stenting and place of putting in DJ Stents, complication of forgotten DJ stents and the procedure to remove them. Additional record was made about the level of awareness of the patients.

### Statistical Analysis:

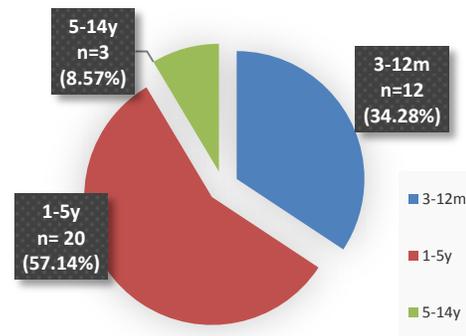
For quantitative variables mean and standard deviation were calculated and for qualitative data Chi-square test was applied.

## RESULTS

Total 35 patient's data was analyzed over a period of 4 years from Jan 2011 to Dec 2014. Age range was between 4 years to 60 years (Mean  $24 \pm 1.2$  SD). Mean indwell time was 2.3 years (range 5 months to 14 years)



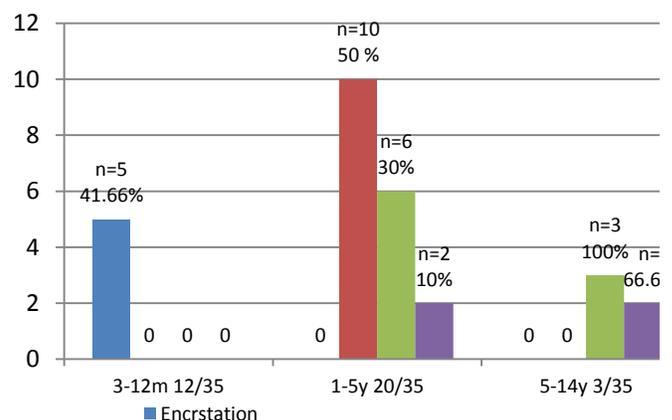
**Fig 1: Sex distribution**



**Fig 2: Duration of forgotten DJ stents**

Patients had multiple complaints and among the different presentations 20/35 (57.14%) presented with dysuria, 10/35 (28.57%) had episodes of hematuria, 6/35(17.14%) had pain and 15/35(42.85%) did not know that they have DJ Stents inside the urinary tract, 12/35(34.28%) patients were told about the DJ Stents but they took it lightly, 8/35 (22.85%) patients knew the importance of DJ removal but they could not get it removed due to domestic problems.

Out of 35 patients, Litholapaxy and cystoscopic DJ removal was successful in 11/35 (31.42%) patients, URS was done in rest 24/35 (68.57%) patients and in 20/35 (57.14%) patients it was successful after stone breaking with lithoclast at lower end and in the ureteral part and at upper end. Two patients 5.71% needed ESWL at their upper ends to get the stones / encrustation broken and their URS was successful. In patients with broken DJ stents two got their DJ removed by URS, one patient needed PCNL to get its upper end removed where stones were formed over it. One had to undergo Pyelolithotomy.



**Fig 3: Complications of forgotten DJ stents**



**Fig 4: X-Ray showing the stones at both upper and lower ends**



**Fig 5: Showing broken DJ stent**

## DISCUSSION

Since their first description in 1967 and their regular use from 1978, DJ stents material has been improving regularly in an attempt to reduce the encrustation rate.<sup>2,5</sup> Encrustation rate increases with increase of indwell time. In our study the maximum indwell time is 14 years which is probably maximum time described by any author in literature as shown by case reports of Chan-Kai Chun et al and by Wani-B et al where duration of forgotten DJ stents was 7 and 4 years respectively.<sup>6,7</sup>

In our study 41.66% of our patients were having encrustation in the first group having indwell time of 3-12 months. Those DJ stents were removed by litholopaxy and DJ removal forceps cystoscopically.

In Kawahara study 75.9% were having encrustation where DJ indwell time was 7-12 weeks which is high percentage of encrustation and indwell time is less than in our study.<sup>4</sup>

Those patients having indwell time of 1-5 years have encrustation only in 2 patients and these were removed by DJ removal forceps. Rest were having stone formation at different levels. Ten patients (50%) were having stone at lower ends which was broken by stone punch, lithoclast and DJ removed by DJ removal forceps. Six patients (30%) were having stones at both upper and lower ends and were removed by URS alone, URS + Litholopaxy and ESWL + URS. Two out of three patients (66.66%) having DJ Stents for > 5 years duration got their DJ stents broken during attempts at their removal and PCNL / Pyelolithotomy was done for their removal. While in a study conducted by Patil SM. et al. 48.4% patients were managed by URS, 30.3% by PCNL and 9.09% by open pyelolithotomy.<sup>8</sup> In another study conducted by Y. Dakkak et al. the site of encrustation/stone was bladder portion of DJ in 68.2% and in kidney in 36.4% and on both sites in 50% of cases. In the same study URS, PCNL and open pyelolithotomy were done in 40.99%, 18.18% and 9% respectively.<sup>9</sup>

In our study 20/35 (57.14%) patients were male of 15 (42.85%) were female and in Patel SM et al. study 39.4% were female.<sup>8</sup>

In our study 42.85% patients did not know about DJ insertion while in Patil study 54.6% did not know it.<sup>8</sup>

In order to avoid these complications there are certain suggestions:

- Thread with the DJ should be brought out of urethra.
- A plastic band at patient's wrist can be put.
- A register can be maintained.
- The use of computerized tracking registry was initially proposed by Sabharwal et al. in 1995 and Monga et al.<sup>10,11</sup> and suggested later by Ather MH et al. in 2000<sup>12</sup> and recently in 2015 by Patel SM et al.<sup>8</sup>

If DJ need to be placed for >3 months, it should be replaced by a new one.

## CONCLUSION

Institution should adopt their own policy in the light of above said suggestions to prevent the incidence of forgotten DJ stents.

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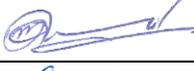
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