

Original Research Article

Does every Ureteroscopic Lithotripsy (URSL) patient need to suffer stent symptoms?

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	International Archives of Integrated Medicine, Vol. 4, Issue 12, December, 2017. Copy right © 2017, IAIM, All Rights Reserved. Available online at http://iaimjournal.com/ ISSN: 2394-0026 (P) ISSN: 2394-0034 (O)	
	Received on: 14-11-2017 Source of support: Nil	Accepted on: 23-11-2017 Conflict of interest: None declared.
How to cite this article: Santhosh B, Sudarshan. Does every Ureteroscopic Lithotripsy (URSL) patient need to suffer stent symptoms? IAIM, 2017; 4(12): 59-63.		

Abstract

Background: Double J stent is a tube placed in the lumen of the ureter to maintain its patency. Double J coils at proximal and distal ends makes it self-retaining by securely anchoring it at renal pelvis and at bladder levels.

Materials and methods: A total of 661 patients operated for ureteric calculus from June 2014 to September 2017 at Jeevan Hospital, Omni Hospital, Healthcare Hospital and Evya Hospital Hyderabad, Telangana were studied. Jeevan Hospital was selected to follow strict indications for DJ stenting after ureteroscopic stone removal. Other hospitals were selected for routine DJ stenting after ureteroscopic stone removal. 378 cases were operated in Jeevan hospital and only 54 cases required DJ stenting.

Results: Over all the rate of ureteral stenosis was seen in 4 patients (0.60%) of which 2 were from stented group and 2 (0.30%) were from non-stented group and 2 (0.30%) patients required ureteroneocystostomy, 1 patient required ureteroneocystostomy with psoas hitch and one patient was on DJ stent and was on follow up.

Conclusion: Stent could be safely avoided in 85.7% of cases following strict indications for stenting. Complications like ureteral stricture are not limited to non-stented group. Judicious use of stent makes many patients symptom free, and makes them to resume duties early and sexual activity early.

Key words

DJ stent, URSL, Stent symptoms.

Introduction

Double J stent is a tube placed in the lumen of the ureter to maintain its patency. Double J coils at proximal and distal ends makes it self-retaining by securely anchoring it at renal pelvis and at bladder levels [1]. These coils also prevent migration of stent due to urine flow, ureteral peristalsis and patient movement. It became very important and necessary tool in urologists' armamentarium since it is described by Zimskind in 1967 [10].

There are specific indications for double J stenting after URSL such as ureteral edema with or without long term stone impaction, ureteral perforation during lithotripsy or with scope tip, streinstrasse in large stone burden, previous history of or present renal failure, URSL done in a solitary kidney or a transplant kidney. Recent history of UTI or Sepsis, prolonged endoscopic operative time, longstanding impacted stone, pregnancy, for passive dilatation of the ureter and if there are any plans of second look procedure are the relative indications for dj stenting of ureters [2].

Despite such indications DJ stent is being overused in today's practice. Worldwide data by show that 13% of urologists leave a DJ stent 100% of the times after endoscopic stone removal, 66% of the urologists leave a DJ stent more than 50% of the times even though it is not tolerated by many [9]. The numbers would be further higher in India.

Here we present a comparative study of 378 patients for whom URSL was done of which only 54 (14.3%) patients required DJ stenting following the indications strictly and of 283 patients for whom URSL was done and stent was placed in all the patients irrespective of indications.

Aim of the study

- To compare symptoms of the patients after URSL with DJ stent and without DJ stent.

Materials and methods

A total of 661 patients operated for ureteric calculus from June 2014 to September 2017 at Jeevan Hospital, Omni Hospital, Healthcare Hospital and Evya Hospital Hyderabad, Telangana were studied. Jeevan Hospital was selected to follow strict indications for DJ stenting after ureteroscopic stone removal. Other hospitals were selected for routine DJ stenting after ureteroscopic stone removal. 378 cases were operated in Jeevan hospital and only 54 cases required DJ stenting. Other hospitals put together 283 patients were operated for ureteric calculi and routine DJ stenting was done in all cases irrespective of indications.

Of these 54 cases required DJ stenting the indications were as follows (**Figure – 1**): Impacted stone with granulations in 18 cases (33.3%), Ureteral perforation in 9 cases (16.6%) Ureteral edema in 8 cases (14.8%), Solitary kidney in 4 cases (7.4%), Narrow VUJ in 9 cases (16.6%), prolonged operative time in 3 cases (5.5%), Infection to drain pus in 3 cases (5.5%).

The total number of patients' stented was 337 and the total number of patients who were not stented was 324 (**Figure – 2**).

All the patients who were not stented were followed up at intervals of 1 month 3 months 6 months and annually thereafter for three years with history taking and ultra sound abdomen and pelvis.

Results

The Ureteral stent symptom questionnaire USSQ which has 38 items under 6 sections such as pain, voiding symptoms, work performance, sexual issues, overall general health, and additional problems is used to assess the symptomatology of the patients [8].

Observations in stented group (337) were as follow

Frequency in 220 patients (65%), Urgency in 228 patients (67.65%), Dysuria in 180 patients

(53.41%), Sense of incomplete emptying in 110 patients (32.64%), Flank pain in 138 patients (40.94%), Supra pubic pain in 122 patients (36.20%), Urine incontinence in 68 patients (20.17%), Hematuria in 59 patients (17.50%), Infections in 92 patients (27.29%) of which 45 patients (13.35%) needed readmission and injectable antibiotics and early removal of DJ stent (usual removal was at 3 weeks in uncomplicated case).

Figure – 1: Indications for stenting in our study.

fig.1 Indications for stenting in our study

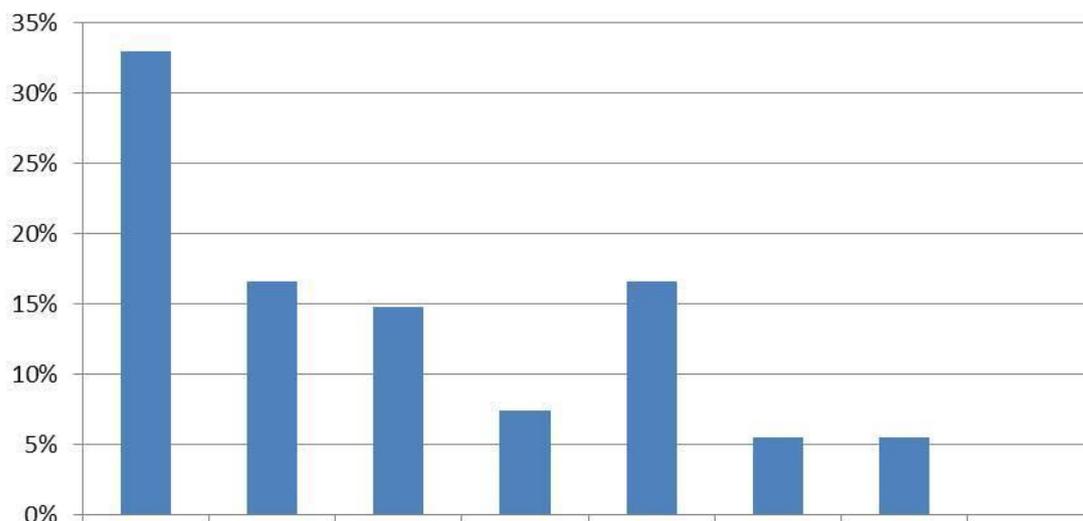
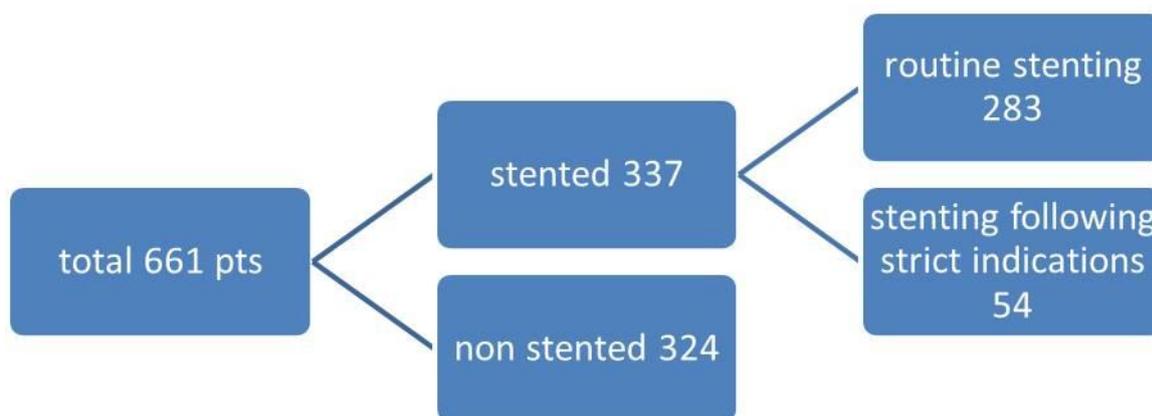


Figure – 2: Total number of patients and different groupings.



Stent encrustations in 14 patients (4.15%) because of delayed removal of which 6 (1.78%) were retained dj stents with encrustation all along the stent and required CLT, URSL, and PCNL for removal under higher antibiotic coverage. Sexual dysfunction was seen in 94 patients (27.89%).

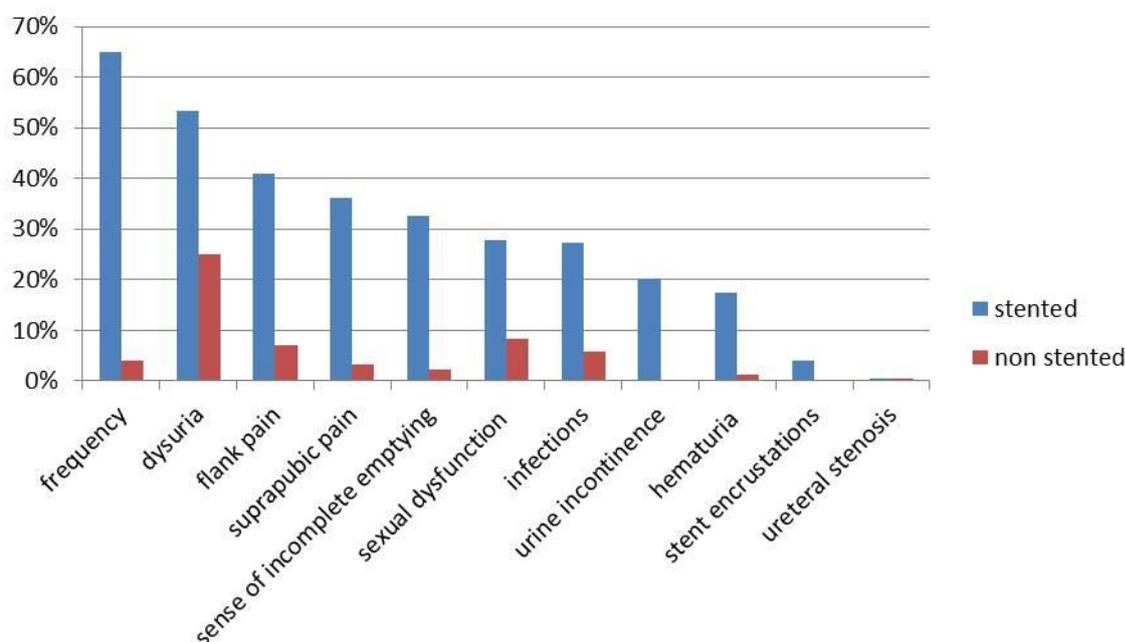
Observations in non-stented group (324) were as follow

Renal colic in 13 patients (4%) treated conservatively, Flank pain in 23 patients (7.09%), Frequency in 13 patients (4.01%), Urgency in 17 patients (5.24%), Dysuria in 81 patients (25%), Sense of incomplete emptying in 7 patients (2.16%), Supra pubic pain in 11 patients (3.39%), Hematuria in 4 patients (1.23%), Infection in 19 patients (5.86%) but no patient required readmission for its treatment, Sexual dysfunction was seen in 27 patients (8.33%).

Over all in both the groups the rate of ureteral stenosis was seen in 4 patients (0.60%) of which 2 were from stented group and 2 (0.30%) were from non-stented group and 2 (0.30%) patients required ureteroneocystostomy 1 patient required ureteroneocystostomy with psoas hitch and one patient was on DJ stent and was on follow up.

Resumption to work was early in non-stented group (3- 6 days) when compared to stented group (9-18 days) (**Figure – 3**).

Figure – 3: Comparison of symptoms in both the groups.



Discussion

Stent symptoms are subjective and can vary from patient to patient, but will affect around 85% of patients [3]. The mechanisms of various stent symptoms are as follows [7]. Frequency is attributed to mechanical stimulation from bladder coil of the stent, in a mobile person during day time the range of stent movement is around 2.5 cm, this can be supported by absence of nocturia in these patients. Urgency can be a direct effect of stent or stent can unmask or exacerbate pre-existing detrusor over activity. Dysuria is usually terminal and is believed to be due to trigonal irritation by stent or due to incompletely

formed loop of the stent. Flank pain is because of reflux into kidney while voiding. Supra pubic pain is because of bladder irritation by distal coil of the stent. Incontinence is because of urgency or because of stent migration across the sphincter. Hematuria is because of either surgery or stent. Encrustations are because of decreased fluid intake and because of delay in removal. Renal colic in non-stented patients can be because of ureteral edema or obstruction due to clots or ureteral spasm [4]. Infection can result from previously untreated UTI, instrumentation, stone fragmentation, ureteral injuries or stent itself.

Ureteral stenosis is more common at chronic impaction site of stone, at ureteral perforation, narrow VUJ, ureteral avulsion partial or complete [5].

Avoiding the stent by following strict indications for stenting is the best way to prevent stent related symptoms in many patients. And in patients who require stent selecting proper length of the stent, properly positioning them, selecting drug coated stents, limiting the dwelling time of the stent, prior peri ureteral injections of ropivacaine can prevent or minimize the symptoms [6]. And those who suffer the symptoms need treatment. Alfa blockers like Alfuzosin, Tamsulosin alone or in combination with anti-cholinergics like tolterodine or oxybutinin have shown to relieve the symptoms. Recent development in treatment of stent symptoms is to instill drugs intravesically. Drugs studied are intravesical ketorolac, intravesical alkalized lidocaine, and intravesical oxybutinin. And finally if there is no improvement in symptoms early removal of the dj stent can be considered.

Conclusion

Dj stents are being over used in urology worldwide. There are specific indications for dj stenting after ureteroscopy. DJ stent symptoms are intolerable to considerable number of patients and also are the reason for delayed resumption of work. Our study clearly shows that stent could be safely avoided in 85.7% of cases following strict indications for stenting. Complications like ureteral stricture are not limited to non-stented group. Judicious use of stent makes many patients symptom free, and makes them to resume duties early and sexual activity early.

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