SYMPTOMATIC COMPLICATIONS OF URETERIC STENTS

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ABSTRACT

Objectives: *To calculate the frequencies of symptomatic complications of pigtail ureteral stents and to determine the effect of stent duration on symptomatic complications.*

Methodology: *All stented adult patients (PTFE Coated Cook® 6 Fr Double J Stent) presenting at the Institute of Kidney Diseases Hayatabad Peshawar were evaluated by history, examination, urine analysis and cultures, X-ray KUB and ultrasound KUB. SPSS version 11.0 was used for the data entry and analysis. Results are presented in the form of tables.*

Results: *Out of 100 patients, 68% were males and 32% females. Stent indications included stone surgery in 14% of cases, prior to extracorporeal shockwave lithotripsy (ESWL) in 36%, ureteric obstruction in 36%, pyeloplasty in 10%, and anuria in 4% of cases. Complications at 2 and 4 weeks were hematuria in 52% and 40% of cases, flank pain in 48% and 58%, frequency of micturation in 66% and 78%, dysuria in 72% and 80%, urgency in 60% and 72% and suprapubic pain in 42% and 50% of cases respectively.*

Conclusion: *Ureteric stenting is a life saving procedure but associated with significant morbidity. It's unnecessary and prolonged use should be avoided.*

Keywords: *Ureteric stents, Complications, Double J stents.*

INTRODUCTION

Stents are prosthetic implant devices providing endoluminal mechanical support. In urology, for many years, stents have been utilized for management of ureteric obstruction which was traditionally managed by proximal percutaneous urinary diversions (Percutaneous Nephrostomy PCN) but it subjects the patient to the risks of operative morbidity and mortality and also carries the burden of external catheters and collection devices. Similarly, percutaneous pyelo-ureteral procedures were evolved from the above mentioned approach[1]. Internal stenting is valuable as it eliminates external drainage devices and has low morbidity.

Currently stents are being routinely used in patients with ureteric obstruction (idiopathic retroperitoneal fibrosis, colorectal cancer, ureteric stone), renal transplant, uretero-renoscopy (URS), prior to shockwave lithotripsy for stone and after pyeloplasty[2-6]. Thus, the complications of stents are more frequently encountered than before. Certain consequences can be anticipated with implantation of a foreign object into the urinary tract[2, 7]. Patients report lower abdominal pain, flank pain, frequency, urgency, dysuria, haematuria, fever, stent migration and encrustation of stent[7-9]. Now-a-days, manufacturers have altered stent designs and materials in an attempt to minimize the associated morbidity.[3] Stents are made of polyurethane, silicone, biodegradable substances and new combination polymers[10]. Nevertheless, ureteric stents are still evolving and their use is not entirely free of complications[4].

The purpose of this study was to highlight symptomatic complications of indwelling ureteral stents and to establish the effect of duration of stent placement on the symptoms.

METHODOLOGY

All the adult males and females having DJ stent placed for not more than 2 weeks or requiring DJ stent placement, presenting to outpatient and emergency department of Institute of Kidney Diseases Peshawar from 1st August 2009 to 31st January 2010 were included in the study after their written informed consent and approval from the ethical committee. Patients having

bladder stone, documented UTI, bladder tumour, interstitial cystitis, urethral syndrome, pregnancy and malignant ureteric obstruction were excluded. Patients were evaluated by history, examination, urine analysis, urine culture and sensitivity, X-ray KUB and ultrasound KUB. Standard PTFE coated polyurethane Cook® double pigtail 6 Fr ureteric stents were inserted using 22 Fr Karl-Storz Endoskop Germany® cystoscopic sheath and 30^0 telescope over a 0.038 cm guide wire by or under the supervision of experienced urologist. The position of stent was confirmed by fluoroscope. These patients were followed up 2 and 4 weeks after stenting. All the symptoms were recorded on a questionnaire especially designed for it. SPSS version 11.0 was used for the data entry and analysis. Descriptive statistics such as frequencies, percentages and mean with standard deviation were calculated. Chi-Square test was used to compare the symptoms at 2 and 4 weeks and p-value of less than 0.05 was considered clinically significant.

RESULTS

Out of 100 patients included in the study, 68% were males and 32% females. The age ranged between 15-65 years with mean of 35.96 ± 12.07. Stenting had been done on right side in 66 (66%) cases and left side in 46 (46%) cases, while in 10 (10%) bilateral stenting had been done. The indications of stenting included stone surgery in 14(14%) cases, before sessions of ESWL in 36 (36%) cases, ureteric obstruction in 36(36%) cases, pyeloplasty in 10 (10%) cases, and anuria in 04 (04%) cases (Table 1).

It is obvious from our study that dysuria was the most common symptom followed by frequency, urgency, flank pain, hematuria and suprapubic pain. In contrast to hematuria, all other symptomatic complications had an increased frequency at 4 weeks as compared to those at 2 weeks (P=0.000)(Table 2).

DISCUSSION

In our study 100 patients were enrolled who underwent ureteric stenting for various indications. 66% of patients were males and 34% were females which is comparable to the study conducted at The University Hospital of Poitiers, France by Irani et al[11].

The age range in our study was 15-65 years while in the study conducted by Irani et al, it was 26-74 years[11]. In another study conducted by H. Jeong et al, the age range was 20-60 years[12].

The most common indications of stenting in our study were ureteric obstruction and prior to ESWL (36% each) in contrast to a study conducted at The Armed Forces Institute of Urology, Rawalpindi, where the most common indication was surgery for ureteric stones[13]. This finding demonstrates the burden of stone disease in our community. The stent was kept for 2-4 weeks in our study while H. Jeong kept it for one week[12]. In another study conducted in Egypt, the median stenting period was 8 weeks[14].

Dysuria was the most common symptom and was present in 76% of cases (Cumulative percentage) followed by frequency 72%, urgency 66%, flank pain 53%, suprapubic pain and hematuria 46% each. This finding is supported by

Table 1: Indications of DJ Stenting (n=100)

Indication	No of Cases	%age
Prior to ESWL	36	36%
Ureteric obstruction	36	36%
Stone Surgery	14	14%
PUJ surgery	10	10%
Anuria	04	04%

Table 2: Complications At 2 And 4 Week

Complication	2 weeks	4 weeks	P-value
Hematuria	52%	40%	0.000
Flank Pain	48%	58%	0.000
Frequency	66%	78%	0.000
Urgency	60%	72%	0.000
Dysuria	72%	80%	0.000
Suprapubic Pain	42%	50%	0.000

a study conducted at Bristol Urological Institute, United Kingdom where most patients (80%) experienced bothersome urinary symptoms like frequency, urgency, dysuria, hematuria and stent related pain[15]. Yet another study conducted by Chew et al supports our findings, where 76% of patients with ureteric stent suffered at least some symptoms related to stent; irritative symptoms (frequency, urgency and dysuria) and hematuria[16]. Another study conducted at Mansoura, Egypt showed 59% of patients with ureteric stent experiencing discomfort consisting of frequency, urgency, dysuria, flank pain, suprapubic pain and haematuria or some combinations of these[14]. The results of these studies are comparable with our study.

In our study, in patients having stent after renal stone surgery, the most common symptoms were voiding symptoms (Frequency, urgency, dysuria). In contrast to our study, in patients at All India Institute of Medical Sciences, the main complaints were flank pain (35%) and irritative urinary symptoms (6%) only[17]. In another study conducted by S.Richter et al, only 16% of patients complained of flank pain on stented side.

The vast majority of our patients' symptomatology has been linked to placement of DJ stent. However the limitation of our study in our opinion has been the fact that we included some of the patients who were already stented and although their present urine cultures showed no evidence of infection, their cultures before stent placement were unavailable which could have led to some erroneous results. There are, however, adequate number of studies which support our results in a positive manner and enabled us to draw our conclusions.

CONCLUSION

Symptomatic complications of DJ stents are quite common and their frequency increases as the duration of stent placement increases. Thus unnecessary and prolonged use of DJ stents should be avoided.

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