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ORIGINAL ARTICLE

Percutaneous Nephrostomy Verses Ureteral Stenting for the Analysis and Management of Urinary Track Obstruction

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ABSTRACT

Introduction: Ureteral obstruction is a heterogeneous clinical entity, and it is often challenging for the clinician to determine the optimal method of decompression.

Objectives of the study: The main objective of the study is to find the percutaneous nephrostomy verses ureteral stenting for the analysis and management of urinary track obstruction.

Methodology of the study: This cross sectional study was conducted at Department of Urology, DHQ Teaching Hospital Gujranwala during January 2021 till October 2021. The data was collected from 55 patients. The data was collected with the permission of ethical committee of hospital. In all patients, the procedures were conducted by urologists.

Results: There were 55 patients in this study. The mean age was 57.65 ± 2.54 years. There were 33 patients with ureteral stents and 22 (40%) with PCN tubes. The mean length of redirection was 17.8 ± 4.6 months in the stent bunch versus 13.1 ± 4.89 months in the PCN bunch (p = 0.059) (table 01). **Conclusion:** It is concluded that PCN is proved to be a suitable modality for drainage of pyonephrosis and ureteric obstruction especially due to malignant disease of pelvic origin which can otherwise be highly fatal.

INTRODUCTION

Ureteral obstruction is a heterogeneous clinical entity, and it is often challenging for the clinician to determine the optimal method of decompression. Harmful ureteral check can emerge from inborn urologic danger like prostate or bladder disease, or extraneous association from another essential threat, most regularly of gynecologic or colorectal beginning. The helpful objective of urinary waste in harmful sickness is to enough deplete the upper urinary plots for suggestive alleviation with support of renal capacity, permitting the inception of fundamental treatment while limiting further urologic intercession, hospitalization and adverse consequence on the personal satisfaction [1]. Then again, the etiology of harmless ureteral hindrance is by and large an outcome of intraluminal pathology, for example, ureteropelvic intersection impediment, ureteral stones or ureteral stenosis. Extraluminal harmless hindrance can emerge from limited mass impact of harmless growths like uterine leiomyomas or retroperitoneal fibrosis Urinary redirection is one of the ways to deal with supervise ureteral impediments and is normally acted in our ordinary practice when the essential condition of ureteral check can't be shed in a concise period [2]. At the point when a metastatic physical issue impacts a ureter, the resultant check is really difficult to fix and should in this manner be depleted. The approach of exhausting pee, the supposed urinary redirection, can be either the usage of an inside ureteral stent (e.g., a twofold J stent) or a percutaneous nephrostomy (PCN). Yet both the philosophies save renal limit, they contrast in various angles [3].

Obstructive uropathy is perhaps the most widely recognized condition influencing the urinary framework and is a huge reason for renal disability, prompting end-stage renal disappointment. It is a condition wherein impedance of urinary stream causes dilatation of the pelvicalyceal framework, bringing about harm to the renal parenchyma; 9.2% of ongoing kidney sickness cases are brought about by impediment of the urinary lot. No or imperfect therapy will prompt inescapable long-lasting persistent kidney infection through a mix of ischaemic or neglect instigated rounded injury, aggravation and interstitial renal fibrosis [4].

Pressing decompression is justified in instances of intense obstructive uropathy, either percutaneously through a nephrostomy tube or retrogradely by means of ureteral stent position [5]. This decompression forestalls further deteriorating of renal capacity, irritation and ischaemia to renal parenchyma that can ultimately advance to irreversible ongoing kidney illness [6].

Objectives of the study: The main objective of the study is:

- To find the percutaneous nephrostomy verses ureteral stenting for the analysis and management of urinary track obstruction.

METHODOLOGY OF THE STUDY

This cross sectional study was conducted at Department of Urology, DHQ Teaching Hospital Gujranwala during January 2021 till October 2021. The data was collected from 55 patients. The data was collected with the permission of ethical committee of hospital. In all patients, the procedures were conducted by urologists. Percutaneous nephrostomies were conducted under ultrasound guidance with local anaesthesia. Retrograde ureteral stents were inserted using a cystoscope after patients were put under general anaesthesia. All stents were double-J stents. We conducted statistical analyses using random effects models and expressed the results as risk ratio (RR) and risk difference (RD) for dichotomous outcomes and mean difference (MD) for continuous outcomes, with 95% confidence intervals (CIs).

RESULTS

There were 55 patients in this study. The mean age was 57.65 ± 2.54 years. There were 33 patients with ureteral stents and 22 (40%) with PCN tubes. The mean length of redirection was 17.8 ± 4.6 months in the stent bunch versus 13.1 ± 4.89 months in the PCN bunch (p = 0.059) (table 01).

The indications for drainage were similar between the groups. Patients presenting with acute renal failure amounted to 57.8% in the DJS group and 60% in the PCN group. The only significant difference between the groups was pre-drainage eGFR: patients in the PCN group were found to have lower baseline eGFR and lower eGFR at presentation.

Table 1: Demographic characteristics of selected patients

	DJS (n = 33)	PCN (n = 22)	p value
Age (years)	57.65 ± 2.54	54.55 ± 6.74	0.687
BMI (kg/m^2)	25.6	26.8	0.878
Hypertension	24 (53.3%)	13 (43.3%)	0.683
Diabetes mellitus	14 (31.1%)	7 (23.3%)	0.622
Ischemic heart disease	8 (17.7%)	7 (23.3%)	0.775
Previous endourological procedures	14 (31.1%)	9 (30%)	1
eGFR at presentation	60.3	41.7	0.02
Positive urine cultures	25.6%	40.7%	0.199
Stone diameter (mm)	8 (7–11)	8 (6–12.3)	0.872
Stone location-Proximal	55%	64%	0.469
Stone location-Distal	45%	36%	0.469
Post drainage outcomes			
Post procedure hospitalization Days	1 (1–3)	4 (2–6)	< 0.001
Post Procedural Pain (VAS)	1.02 ± 2.04	1.19 ± 1.52	0.283
Days to baseline eGFR	1 (1–2)	2 (1–3)	0.005
Days to Temp ≤37.5	1 (1–1.5)	1 (1–1.75)	1
Complications 1st procedure	6 (11%)	1 (3.3%)	0.226
Time from 1st to 2nd operation (Days)	47 (29–71)	20 (12–27)	< 0.001

The most common cause of obstructive uropathy was stone disease i.e. renal, ureteric or both and 75.0% patients in group A and 65.0% in group B, presented with it followed by other causes i.e. carcinomas, pyonephrosis and PUJ obstruction.

DISCUSSION

Three terms are utilized to depict an infection as an outcome of urinary lot deterrent: obstructive uropathy, obstructive nephropathy and hydronephrosis, yet each in various meaning [7,8]. If ureteral dilatation due to handicapped movement of pee is connected with renal parenchymal hurt, it is portrayed as obstructive uropathy [9]. It is a possibly perilous condition and on occasion it is appealing to give brief momentary assistance of the prevention, until definitive treatment can be attempted [10]. Cystoscopy with retrograde catheterization and percutaneous nephrostomy (PCN), are two central options for ephemeral urinary redirection with their own advantages and negative marks [11].

Threatening ureteral block might happen optional to bordering growth intrusion, outward ureteral pressure by pelvic malignancies, or by pelvic metastases of growths that start from outside the pelvis like bosom, gastric or pancreatic tumors. Obstacle can likewise happen in the setting of retroperitoneal or pelvic lymphadenopathy because of metastatic sickness, or as an outcome of therapy coming about in retroperitoneal fibrosis or ureteral injury [12].

Impediment might be clear during arranging of the sickness or workup for hindered renal capacity as proven by hydronephrosis with renal cortical decay on stomach imaging. Furthermore, patients might encounter intense flank torment, renal disappointment, uremia or sepsis auxiliary to urinary lot diseases. The reasoning for decompression intends to offer help of the above side effects, to lighten complexities from renal inadequacy and to work with foundational treatment [13].

Deciding the etiology of impediment might be useful in arranging therapy approaches as growths including the bladder, uterine cervix and prostate disease are known to have lower retrograde stenting achievement rates. The etiology of deterrent is likewise significant for assessing patient anticipation. Non-urologic malignancies, for example, gastric and pancreatic tumors have a more awful visualization with more limited in general endurance than urologic malignancies [14].

CONCLUSION

It is concluded that PCN is proved to be a suitable modality for drainage of pyonephrosis and ureteric obstruction especially due to malignant disease of pelvic origin which can otherwise be highly fatal.

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