

THE COMPARISON OF OUTCOMES FOLLOWING PERCUTANEOUS NEPHROSTOMY VERSUS DJ STENTING IN THE MANAGEMENT OF OBSTRUCTIVE UROPATHY FOLLOWING CERVICAL CANCER

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Abstract

Background: Patients with advanced cervical cancer who have obstructive uropathy have a very poor prognosis. The overall survival of advanced stage cervical cancer (stage III/IV) is less than 15-20%. Percutaneous Nephrostomy and DJ stenting are the available options to treat Obstructive uropathy. **Aim:** The aim of this study is to compare the complication rate following Percutaneous nephrostomy versus DJ stenting in the management of obstructive uropathy following cervical cancer. **Materials and Methods:** This is a prospective study done in the Institute of urology, Madras Medical College and Rajiv Gandhi Government General Hospital for a period of 6 months from March to August 2024. A total of 100 patients were taken into the study with 50 patients undergoing bilateral PCN insertion (Group A) and 50 patients undergoing bilateral DJ stenting (Group B). The following parameters were assessed postoperative complications like fever, Hematuria and the duration of hospitalization. **Result:** Fever and septicemia complication rate was 2 % in group A (PCN insertion) while it is 8% in DJ stenting which was statistically significant. (p=0.02). The most common complication of percutaneous nephrostomy (PCN) was Hematuria, which occurred in 14% patients in our study. Post DJ stenting hematuria was found in 24% patients. Another common complication with DJ Stenting was painful trigone irritation which occurred in 20% patients in our study. The mean duration of hospitalization with patients with DJ stenting was 3.6 Days versus 1.1 days for PCN insertion. **Conclusion:** This study concludes that percutaneous nephrostomy is a safe, quick and better method of temporary urinary diversion than DJ stenting for management of obstructive uropathy with lower incidence of complications.

INTRODUCTION

One of the manifestations of advanced cervical cancer was extrinsic ureteric obstruction. Obstruction to the urine flow could increase the pressure within the collecting system which can lead to acute kidney injury. Obstructive uropathy is the structural impedance to the flow of urine and can occur at any level from urethral meatus to the calyceal infundibula. It is a potentially life-threatening condition, and then immediate measures are required to decompress the kidney, to prevent uremia, water-electrolyte abnormalities and urinary infections.^[1,2] Urinary diversion is one of the ways to manage

ureteral obstructions and is commonly performed when ureteral obstruction cannot be eliminated in a short period. The various methods of urinary diversions are retrograde double J ureteral stenting, percutaneous nephrostomy and open drainage of kidney.^[3]

The selection of diversion procedures should consider the stage of the disease, age of the patient, prior chemo or radiotherapy, and the prognosis of the patient. The options available for patients with obstructive uropathy following cervical cancer include Percutaneous nephrostomy and Double J stenting (DJ stenting).^[4] Guidelines for managing

patients with ureteric obstruction with gynecological malignancies have not been well established. Retrograde insertion of stents was associated with a high failure rate in these patients. Percutaneous nephrostomy carries the disadvantage of needing to carry an external urinary collecting bag.^[5] The aim of the study was to compare the complication rate following bilateral Percutaneous nephrostomy versus bilateral DJ stenting in the management of obstructive uropathy following cervical cancer.

MATERIALS AND METHODS

This was a prospective study done in the Institute of Urology, Madras Medical College and Rajiv Gandhi Government General Hospital, Tamil Nadu for a period of 6 months from March 2024 to August 2024. Patients of age >30 years of age, who had undergone either PCN insertion or DJ stenting for obstructive uropathy following cervical cancer are included in this study. Patients on anticoagulants, patients with leukopenia, thrombocytopenia and anemia (Hb < 6 g/dl) and patients who had received chemotherapy less than 3 weeks are excluded from this study. A total of 100 patients with carcinoma cervix with obstructive uropathy were taken into the study. 50 patients undergoing bilateral PCN insertion (Group A) and 50 patients undergoing bilateral DJ stenting (Group B) were taken up for the study. Consecutive sampling method was used.

Statistical analysis: To analyse the data SPSS (IBM SPSS Statistics for windows, Version 26.0, Armonk, NY: IBM Corp. Released 2019) and Excel Sheet was used to enter the data is used. A p value of ≤ 0.05 was considered statistically significant.

RESULTS

The study was conducted in population with ages ranging from 36 to 80 with most of the population in the 5th and 6th decades of life as shown in Table 1. 64% of patients in group A and 70% of patients in group B belong to the age group of 51 – 60 years. 26% of patients in group A and 14% of patients in group B belong to the age group of 66 – 80 years, while remaining patients in each group belong to the age group of 36- 50 years. Table 2 shows the frequency and complication rate of the two procedures and the mean duration of hospitalization. Fever and septicemia complication rate was 2 % in group A (PCN insertion) while it is 8% in DJ stenting which was statistically significant. ($p=0.02$) Hematuria following PCN insertion was 14% while it was 24 % in DJ stenting which was statistically significant ($p=0.01$). Painful trigonal irritation was none in PCN insertion while it was present in 10 patients who had undergone DJ stenting (20%) which

was also statistically significant. ($p=0.04$) The mean duration of hospitalization was longer in group B (3.6 days) compared to group A (1.1 days) which was statistically significant. ($p=0.001$) Stent migration never occurred after PCN insertion while it was 6% in DJ stenting which was statistically significant. ($p=0.001$) Injury to adjacent organs never occurred in both the groups. Graph 1 shows the percentage distribution of fever and septicemia among the study participants. Graph 2 shows the percentage distribution of bleeding or hematuria among the study participants. Graph 3 shows the mean distribution of hospitalization time among the study participants.

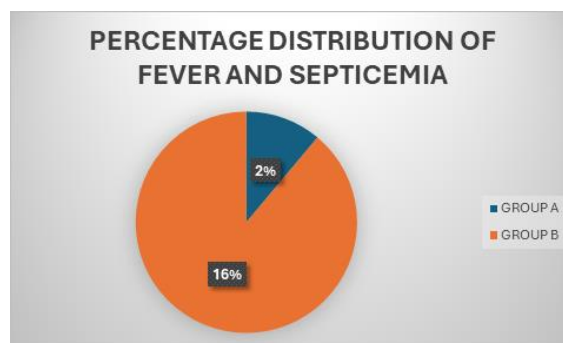


Figure 1: Percentage distribution of fever and septicemia of the study participants according to Group A and B

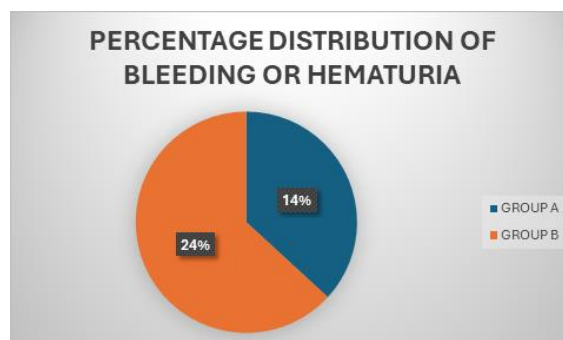


Figure 2: Percentage distribution of bleeding or hematuria of the study participants according to Group A and B

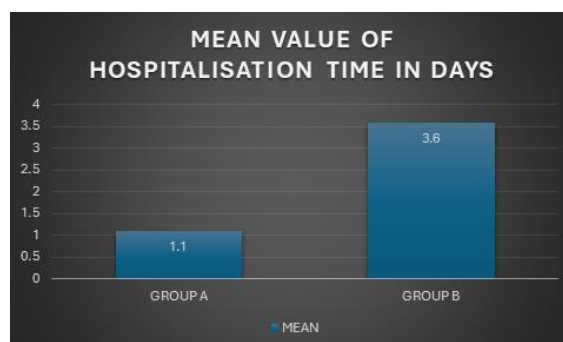


Figure 3: Mean distribution of hospitalization time of the study participants according to Group A and B

Table 1: Age-wise distribution among the study participants according to Group A and B.

| Age group | Groups | Frequency | Percentage |
|-------------|---------|-----------|------------|
| 36-50 years | Group A | 5 | 10.0 |
| | Group B | 8 | 16.6 |

| | | | |
|-------------|---------|----|------|
| 51-65 years | Group A | 32 | 64.0 |
| | Group B | 35 | 70.0 |
| 66-80 years | Group A | 13 | 26.0 |
| | Group B | 7 | 14.0 |

Table 2: Frequency and percentage distribution of complications among the study participants according to Group A and B.

| Complications | Groups | Frequency | Percentage | P value |
|--------------------------------|---------|------------|------------|---------|
| Procedural failure | Group A | 0 | 100.0 | - |
| | Group B | 0 | 100.0 | |
| Fever and septicemia | Group A | 1 | 2.0 | 0.02* |
| | Group B | 8 | 16.0 | |
| Hematuria | Group A | 2 | 14.0 | 0.01* |
| | Group B | 12 | 24.0 | |
| Painful Trigone Irritation | Group A | 0 | 100.0 | 0.04* |
| | Group B | 10 | 20.0 | |
| Hospitalisation time (in days) | Group A | 1.1 (MEAN) | 0.245 (SD) | 0.001* |
| | Group B | 3.6 (MEAN) | 0.239 (SD) | |
| Stent migration | Group A | 0 | 100.0 | 0.001* |
| | Group B | 3 | 6.0 | |
| Injury to adjacent organ | Group A | 0 | 100.0 | - |
| | Group B | 0 | 100.0 | |

DISCUSSION

Cystoscopy with retrograde catheterization (Double J Stenting) and percutaneous nephrostomy (PCN) are two main options for temporary urinary diversion in patients with carcinoma cervix presenting with obstructive uropathy. Post DJ stenting hematuria observed in different studies range from 2-21%. One of the common complications with DJ Stenting was painful trigone irritation which occurred in 20% patients in our study. Memon NA et al have come across this rate as 10.0%.

The most common complication of percutaneous nephrostomy (PCN) was hematuria, which occurred in 14% patients in our study. Ganatra et al reported hematuria as a frequent complication and frequent need for change to PCN if stent fails.^[7] Post DJ stenting hematuria observed in different studies range from 2-21%. In our study it was found in 24% patients. This study 7 also reported frequent stent changes which was done to delay the need for PCN has resulted in transient renal failure, infection, pain and prolonged hospitalization.

Karim R et al,^[8] and Olivera ST et al,^[9] reported hematuria rates of 9.5% and 21.5% respectively.

Eric Kauba et al has reported higher failure rates with retrograde ureteral stenting as observed by persistent hydronephrosis and recurrent pain episodes. These stents fail in 16-58% in patients with obstructive uropathy due to malignancy. Success rate in this method is only 15% - 21% in patients with cervical cancer.^[10] Song yan et al has reported complication rate of 64% in PCN group versus 48% in stented group. However mean duration of hospitalization is much longer in PCN group than stented group and the difference was statistically significant. This is quiet opposite to our study where the mean duration of hospitalization is more in DJ stenting (3.6 days) versus PCN procedure (1.1 days). Song et al also reported a success rate of 100% in PCN group as compared to 66.7% in stented group.^[11] Feng et

reported has reported stent failure at a rate of 65%.^[12] Feuer et al has reported larger rate of stent failure and the degree of hydronephrosis being the major risk factor.^[13] While in our study, there were no stent failure.

CONCLUSION

This study concludes that percutaneous nephrostomy is a safe, quick and better method of temporary urinary diversion than DJ stenting for management of obstructive uropathy with lower incidence of complications.

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