

## DOES URINARY DIVERSION IMPROVE THE QUALITY OF LIFE IN OBSTRUCTIVE UROPATHY SECONDARY TO ADVANCED PELVIC MALIGNANCY?

Shivashankarappa Mudegoudar<sup>1</sup>, Gururaj R. Padasalagi<sup>2</sup>, Ravishankar Ths<sup>3</sup>, Rajesh Ranjan<sup>4</sup>, Saurabh Josh<sup>5</sup>

<sup>1</sup>Associate Professor, Department of Urology, Vijayanagar Institute of Medical Sciences, Ballari, Karnataka.

<sup>2</sup>Senior Resident, Department of Urology, Vijayanagar Institute of Medical Sciences, Ballari, Karnataka.

<sup>3</sup>Assistant Professor, Department of Urology, Vijayanagar Institute of Medical Sciences, Ballari, Karnataka.

<sup>4</sup>Senior Resident, Department of Urology, Vijayanagar Institute of Medical Sciences, Ballari, Karnataka.

<sup>5</sup>Senior Resident, Department of Urology, Vijayanagar Institute of Medical Sciences, Ballari, Karnataka.

### ABSTRACT

#### INTRODUCTION

The incidence of patients presenting with advanced pelvic malignancy with obstructive uropathy is high in our country. Relentless progress of the malignancy will cause deterioration of renal function, aggravation of pain, infection, deterioration of Quality of Life (QOL), uremia and death. Decreased renal function is considered as a contraindication for palliative chemo and radiotherapy. However urinary diversion in these patients will lead to improvement in renal function and may help in administration of palliative therapy and thus, improve the quality of life of these patients.

#### MATERIALS AND METHODS

The present study includes the obstructive uropathy patients secondary to pelvic malignancy referred to our institution for urinary diversion between Jan 2010 to Dec 2014. Total 40 patients were included, of which, 25 patients underwent PCN, 9 patients retrograde DJ stenting, 4 patients refused the treatment, 2 patients were not fit for any intervention due to coagulopathy & comorbid conditions. Of 34 treated patients, 30 were female patients and 4 were male patients. All the patients were explained about the procedure and proper consent taken. Laboratory investigations like CBC, coagulation profile, LFT, routine urine analysis, urine C&S and serum electrolytes were carried out. Haemodialysis was done for 10 patients whose serum creatinine was >6mg% & potassium >6meq. USG guided PCN insertion was done in 8 patients, and in those who failed in this procedure, fluoroscopic C-ARM guided PCN insertion done in 17 patients. Post operatively RFT and serum electrolytes were assessed on 3, 7, 15, & 30<sup>th</sup> day. PCN catheter was changed once in 3 months.

#### RESULTS

8 patients succeeded in USG guided PCN insertion and 17 patients who failed USG PCN insertion, was done under C-Arm guidance. 3 patients received blood transfusion. No deaths were seen during or post procedure in the hospital. Renal functions improved and normalised in most of the patients. 6pts died within 3 months of starting palliative chemo-radiotherapy. 5pts died within 3-6 months, 3pts died at 6 months and 3pts died after 9months of therapy. 9pts died after 1 year and 4 survived up to 2 years. 4pts lost to follow up. DJ stenting (9pts) was done under local anaesthesia whereas fluoroscopic PCN was done under GA. Complications seen were reinsertion of PCN tube due to slipped out tubes in 4 patients and 5pts had pericatheter leak, which subsided after sometime. Pain & fever has significantly come down. Renal function improved & came down to normal values in 13pts within 2weeks of PCN, after 3 weeks in 7pts and after 4 weeks in 2pts. In 2pts RF increased after 3 months of chemo-radio therapy.

#### CONCLUSION

Morbidity related to malignant disease and symptoms were significantly improved after urinary diversion and allowed patients to be submitted for palliative treatment.

#### KEYWORDS

QOL, RFT, Urinary diversion, Obstructive uropathy, Pelvic malignant disease.

**HOW TO CITE THIS ARTICLE:** Mudegoudar S, Padasalagi GR, Ravishankar T, et al. Does urinary diversion improve the quality of life in obstructive uropathy secondary to advanced pelvic malignancy? J. Evid. Based Med. Healthc. 2016; 3(18), 723-727. DOI: 10.18410/jebmh/2016/164

Submission 17-11-2015, Peer Review 02-12-2015,  
Acceptance 10-12-2015, Published 02-03-2016.

Corresponding Author:

Dr. Shivashankarappa Mudegoudar,  
Associate Professor, Department of Urology,  
Vijayanagar Institute of Medical sciences,  
Ballari, Karnataka.

E-mail: ssmudegoudar@gmail.com

DOI: 10.18410/jebmh/2016/164

**INTRODUCTION:** Incidence of patients presenting with advanced pelvic malignancy with obstructive uropathy is increasing day by day.

In spite of enormous development in surgery, RT and CT, pelvic malignancy advances with its local spread. It involves B/L ureters causing obstruction due to local infiltration,<sup>1</sup> external compression and delay in access to proper treatment due to negligence and poor socio economic

conditions of the patient. Relentless progress of the malignancy will cause deterioration of Renal Function, aggravation of pain, infection, uraemia, water and electrolyte abnormalities and deterioration of Quality of life with a consequent reduction in cognitive function and subsequent death.<sup>2,3</sup> Decreased RF will further make palliative chemo & radiotherapy impossible, causing early death. Relieving the obstruction by proper diversion will preserve RFT, reduce pain, drain the infection and make patient fit for palliative chemo radiotherapy and thus improving their QOL.<sup>4</sup> Urologists are frequently involved for the purpose of creating urinary diversion. Hence they come across several problems involved in creating diversion like residual malignancy, anemia, raised Sr. creatinine, electrolyte imbalance and short post RT/Chemotherapy survival not more than 2 years. PCN location prevents reclining comfortably of the patients and necessitates for regular dressing and tube change. It also has mechanical problems like slipping and blocking of the tubes. Among the diversion techniques PCN is a safe and effective method for relieving obstruction. First line treatment of retro grade DJ stenting may not be successful many times due to bleeding, infection and decreased bladder capacity.<sup>3</sup> In its failure, PCN Insertion is done initially under USG guidance and later, if failed under C arm guidance. Advanced pelvic malignancy, especially Ca cervix is the leading cause of obstructive uropathy in our country. Relief of obstruction facilitates further treatment in the form of surgery, RT, CT and may improve Quality of life and long term survival of the patient.

Hence, aim of present study is to know whether urinary diversion improves the quality of life in patients with obstructive uropathy secondary to advanced pelvic malignancy.

**MATERIALS AND METHODS:** We studied prospectively, the patients referred to our institution for urinary diversion for obstructive uropathy secondary to pelvic malignancy between July 2010 to Dec 2014. Total number of patients were 40 with 30 females and 4 males. Malignancies in female patients were carcinoma cervix (25), ovarian carcinoma (2), endometrial carcinoma (2) and carcinoma vagina with carcinoma cervix (1). Male malignancies were carcinoma bladder (2), testicular tumor (1) and carcinoma prostate (1). All the patients were in age group of 26 to 65 years. One patient of carcinoma bladder was excluded due to co morbid conditions. One patient of ovarian carcinoma was excluded due to coagulopathy and comorbid condition. 4 patients of carcinoma cervix refused to undergo procedure. Total 34 pts were included in this study and all pts were counselled that the treatment was not curative but only palliative.

**Inclusion Criteria:** All advanced cases of pelvic malignancies with obstructive uropathy. Serum creatinine > 2mg%, Pyonephrosis, Pain, infection.

**Exclusion Criteria:** Coagulopathy, presence of comorbid conditions, Pts not willing for intervention.

Diagnosis was confirmed by biopsy and HPR. Initially patients having S. Creatinine >6mg%, S. Potassium >6meq

were haemodialysed, clinically stabilised and then taken for proposed procedure. All patients were initially considered for DJ stenting under LA. Those patients in whom DJ stenting was not possible due to bleeding, infection or reduced bladder capacity were considered for PCN insertion.<sup>3</sup> Initially U/S guided Puncture was done under LA, and failed cases were taken for C arm guided PCN insertion under GA.<sup>5,6</sup> PCS puncture obtained with initial puncture needle 18G & 0.032 Terumo guide wire was placed into the dilated system (Figure-6). Tract was dilated up to 10-12 Fr size with fascial dilators over 0.032 guide wire & a pig tail catheter of corresponding size was placed in PCS and fixed to the skin. Post operatively RFT and serum electrolytes were assessed on 3, 7, 15, & 30<sup>th</sup> day. PCN catheter was changed once in 3 months.

QOL evaluation was performed prospectively with our own format /protocol modified from EORTC QLQ-C-30 and SF-36. In this study, we have assessed physical work, cognitive function, emotional and social wellbeing and reduction in symptoms like pain, sleep disturbance and anorexia. Visual analog scale was used in addition to assess satisfaction with the diversion. Evaluation was made in the preoperative and postoperative periods and patients were followed up till death. Regular follow up was done once in every 3 months with PCN tube changing.

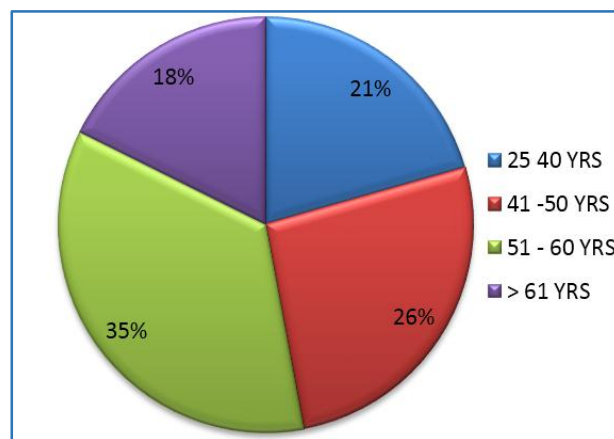


Fig. 1: Age distribution of patients

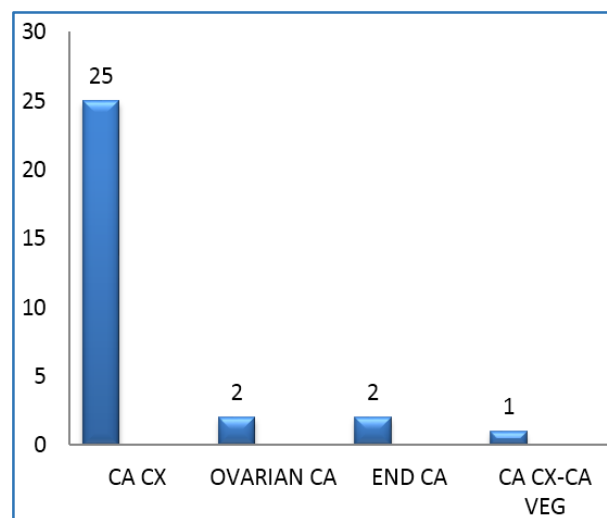
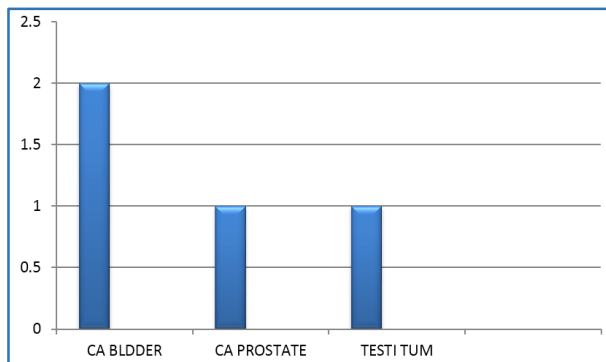


Fig. 2: Types of malignancies in females



**Fig. 3: Types of malignancies in males**



**Fig. 4: Antegrade pyelography showing distal ureteral obstruction**



**Fig. 5: B/L retrograde DJ stenting**



**Fig. 6: Guide wire placed in dilated PCS**

Malignancy (Females)	PCN (USG)	PCN (C-Arm)	DJ Stenting	Total (30)
Ovarian Ca	01	Nil	01	02
Endometrial Ca	Nil	02	Nil	02
Ca vagina with ca cervix	Nil	01	Nil	01
Ca cervix	07	13	05	25

**Table 1: Procedures done in females**

Malignancy (Males)	PCN (C-ARM)	DJ Stenting	Total (04)
Ca testis	01	Nil	01
Ca bladder	01	01	02
Ca prostate	Nil	01	01

**Table 2: Procedures done in males**

Improvement in Bl parameters	<1 week	1-2 week	3-4 week	>4 weeks
Blood Urea	04	18	08	04
S creatinine	04	18	08	04
S potassium	27	07	N	N

**Table 3: Change in RFT after PCN insertion**

**Modified Quality of Life Assessment Scale:**

- PCN has helped/Not in improving overall RFT.
  - 5-Definitely.
  - 4-Somewhat.
  - 3-Same as before.
  - 2-Worse than before.
  - 1-Much worse.
- PCN tube caused disturbance in social life.
  - 5-None of the time.
  - 4-A little of the time.
  - 3-Some time.
  - 2-Most of the time.
  - 1-All the time.
- PCN affected in day to day activity.
  - 5-Vigorous activity.
  - 4-Climbing.
  - 3-Walking.
  - 2-Dressing & bathing.
  - 1-Bending / stooping.
- PCN causing pain.
  - 5-No pain.
  - 4-Mild pain.
  - 3-Moderate pain.
  - 2-Severe pain.
  - 1-Very severe pain.
- Improvement in mental capacity.
  - 5-Extremely.
  - 4-Quite bit.
  - 3-Medium.
  - 2-A little bit.
  - 1-Not at all.

**OUR QOL Score (modified from Health survey SF-36, EORTC QLQ-C 30)  
Total Score-25**

Best response	>18
Good	12-18
Worse	6-12
Worst	<6

**RESULTS:** Patient follow up was done for 6 months to 4 yrs. Statistical analysis was done using the Chi-square and Kaplan-Meier method using the 'Statistical package for the social sciences (SPSS)' software for Windows, version 10.0. Eight patients succeeded in USG guided PCN insertion and 17 patients who failed USG PCN insertion, was done under C-Arm guidance. 3 patients received blood transfusion.No deaths were seen during or post procedure in the hospital. Renal functions improved and normalised in most of the patients. 6pts died within 3 months of starting palliative chemo-radiotherapy. 5pts died within 3-6 months, 3pts died at 6 months and 3pts died after 9 months of therapy. 9pts died after 1 year and 4 survived up to 2 years. 4pts lost to follow up. DJ stenting was done under local anaesthesia whereas fluoroscopic PCN was done under GA. Complications seen were reinsertion of PCN tube due to slipped out tubes in 4 patients and 5pts had pericatheter leak, which subsided after sometime. Pain & fever has significantly come down. Renal function improved & came down to normal values in 13pts within 2weeks of PCN, after 3 weeks in 7pts and after 4 weeks in 2pts. In 2pts RF increased after 3 months of chemo-radio therapy.

**COMPLICATIONS:**

	PCN insertion	DJ stenting
Fever	03	04
UTI	02	03
Pericatheter leak	11	NIL
Bleeding	03	05
Slipped out tube	06	NIL
Hematuria	25	09
<b>Related to Procedure</b>		

**Related to Neoplasia:**

- Anemia-13pts.
- Pneumonia-2 pts.
- Acute abdomen-0.
- Deep vein thrombosis-0.
- GIThemorrhage-0.
- Acute pulmonary edema-3pts.

**DISCUSSION:** Malignancy involving the pelvic organs is on the raise day by day. Females are most commonly affected with malignancies like Ca cervix, ca endometrium, vaginal ca and ca bladder being the leading causes. Whereas, male patients are commonly affected with malignancies like ca prostate, ca bladder and testicular tumors. Along with the morbidity caused by primary malignancy, patients wellbeing

is also affected by obstructive uropathy caused by ureteral involvement. B/L ureteral involvement is mainly caused by direct tumor infiltration, external compression or as a complication of radical surgery or post radiotherapy.

Decreased RF will further make palliative chemo & radiotherapy impossible, causing early death. 88% of the patients with obstructive uropathy secondary to advanced pelvic malignant disease dies within 1 year.<sup>1,7</sup> Relieving the obstruction by proper diversion will preserve RFT, reduce pain, drain the infection and make patient fit for palliative chemo radiotherapy and thus improving their QOL.

Grabstaid and McPhee<sup>8</sup> define a useful quality of life as fulfilling four criteria described as (1) Little or no pain. (2) Full mental capacity. (3) Few complications relating to PCN insertion. (4) Ability to return to home at least 2 months prior to death.<sup>9</sup> In the present study, QOL evaluation was performed prospectively with our own format /protocol modified from EORTC QLQ-C-30 and SF-36. In this study, we have assessed physical work, cognitive function, emotional and social wellbeing and reduction in symptoms like pain, sleep disturbance and anorexia.

QOL score (Present study)	PCN insertion (24)	DJ stenting (09)
Best response (score >18)	04	06
Good response (score 12-18)	09	03
Worse (score 6-12)	07	Nil
Worst (score <6)	04	Nil

About 50% of the patients with PCN insertion, and 100% of patients with DJ stenting as diversion had QOL score of >12 showing good response. Lesser response was seen on QOL scores in patients with PCN insertion as worse (score 6-12) in 30% and worst (score <6) in 20%.

All Pts after normalization of renal functions were eligible for chemo & radiotherapy. Slipping of PCN tube was the commonest problem seen& required reinsertion to be done in 4pts. Pericatheter leak was seen in 9Pts which subsided after wash. Blockage of PCN tube which could be managed with bedside flushing was seen in 7 pts. Procedures were not delayed until completion of haemodialysis unless pts general condition bad rendering them unfit for the proposed procedure. USG guided PCN insertion is better as it avoids radiation exposure but still it requires expertisation. Maintaining the QOL is the primary goal of palliative urinary diversion. Because of high operative risk involved, diversion must be done in minimally invasive manner.

**CONCLUSION:** Urinary diversion in obstructive uropathy due to advanced pelvic malignancy improves patient's quality of life and makes pt eligible for chemo and radio therapy. However, whether it would add to any survival benefit needs to be validated. USG guided PCN insertion is better but still requires expertise.

**REFERENCES:**

1. Frederioco R, Marcos B, Silvio RP, et al. Indications for percutaneous nephrostomy in patients with obstructive uropathy due to malignant urogenital neoplasias. *International braz j urol* 2005;31(2):117-124.
2. Eric Kouba, Eric M, Wallen, et al. Management of ureteral obstruction due to advanced malignancy: optimizing therapeutic and palliative outcomes. *The journal of urology* 2008;180:444-450.
3. Alexandre D, Antonopoulos IM, Mesquita JL, et al. Likelihood of retrograde double-J stenting according to ureteral obstructing pathology. *International Braz J Urol* 2005;31(5):431-436.
4. Vernon M Pais jr, Jack W Strandhoy, Dean G Assimios. Pathophysiology of upper urinary tract obstruction, *Campbell walsh text book of urology*. Vol 2;9<sup>th</sup>ed:Page 1212.
5. Carrafiello G, Lagana D, Mangini M, et al. Complications of percutaneous nephrostomy in the treatment of malignant ureteral obstructions: single centre review. *Uro genital radiology, Radiol med* 2006;111:562-571.
6. Steven F Millward. Percutaneous nephrostomy: A practice approach. *JVIR* 2000;11:955-964.
7. Junichrio Ishioka, Yukio Kageyama, Masaharu Inoue, et al. Prognostic model for predicting survival after palliative urinary diversion for ureteral obstruction: analysis of 140 cases. *journal of urology* 2008;180:618-625.
8. Grabstaid H, McPhee M. Nephrostomy and cancer patient. *Southern Med J* 1973;66:217-20.
9. Wilson JR, Urwin GH, Stower MJ. The role of percutaneous nephrostomy in malignant ureteric obstruction. *Ann R coll surg Engl* 2005;87:21-24.