

## Use of Central Venous Catheter (CVC) as suprapubic catheter for Difficult Urinary catheterization (DUC)

Lakshminarayana GR<sup>1\*</sup>, Sahiba E Ummer<sup>2</sup>, Muthukumar R<sup>3</sup>, Raghunath KV<sup>4</sup>

<sup>1</sup>Consultant, <sup>2,3</sup>Resident Medical Officer, Dept. of Nephrology, EMS Memorial Cooperative Hospital and Research Centre, Perinthalmanna, Malappuram, Kerala, India

\*Corresponding Author: Lakshminarayana GR

Email: drlng23@gmail.com

### Abstract

Difficult urinary catheterization (DUC) is one of the most frequent reason for emergency urologic consultation. We report a case of DUC in case of acute urinary retention (AUR) obstructive uropathy due to BPH, by highlighting the usefulness of suprapubic catheterization using CVC.

**Keywords:** CVC, SPC, AUR.

### Introduction

The common causes of DUC include benign prostatic hyperplasia, urethral stricture, phimosis, bladder neck contracture, false passages, unfavourable body habitus, anasarca, anxiety, and poor technique. The options for managing a case of DUC are limited availability of Urologist in majority of peripheral centres in India.

### Case Report

A male aged 67-year, case type 2 diabetes mellitus, systemic hypertension, CKD stage 3, diabetic nephropathy, BPH post TURP was for 4 years ago, was referred to our centre from another hospital with worsening renal parameters, reducing urine volume, fever, and generalized weakness of 7 days duration in the month of April 2020.

His evaluation showed severe renal failure (S. Creatinine: 7.5 mg/dl & Blood urea :110 mg/dl), urine showed mild proteinuria (Urine albumin: 2+), pyuria (plenty pus cells/hpf), 2-4 RBCs /hpf & granular casts. He also had anemia (Hemoglobin: 9 g/dl, normocytic normochromic) with high ESR (75 mm/1hr; normal 0.0-20), hyperuricemia (7.5 mg/dl, normal 3.4-7.0), hyperphosphatemia (6.5mg/dl, normal 2.7-4.5), mild hyponatremia (126 mmol/l, normal 136-145). His ultrasound abdomen revealed normal sized kidneys with increased echogenicity, prominent pelvicalyceal system with gross prostatomegaly with prominent median lobe (65 cc) and distended urinary bladder (PVR:400 ml) with thickened wall (5mm).

He was treated with empirical antibiotics, inotropes, IV fluids suspicion of acute on chronic renal failure due to recurrent urosepsis and acute pyelonephritis. Foley's catheter (14 Fr) insertion was attempted 5-6 times after USG abdomen report, but wasn't successful. Urology opinion wasn't possible as Urologist was out of station. The CVC (Certofix R Duo V715, by B Braun, Germany, Fig. 1) was inserted under local anaesthesia (2% Lignocaine) and ultrasound guidance by Seldinger technique. The CVC was fixed to skin of abdominal wall after confirming the position of its tip in urinary bladder. The hemodialysis was initiated through right temporary dual lumen internal jugular catheter (IJC). He was

continued on alternate day hemodialysis. CVC was maintained for 72 hours with urine volume around 750-1000 ml/day. The Foley's catheter was inserted after cystoscopy after 72 hours in consultation with Urologist. Urine culture grew *Pseudomonas aeruginosa* (>1 lakh cfu/ml), and was treated with sensitive antibiotic (Piperazillin+Tazobactam) for 14 days. His renal parameters started improving slowly and hemodialysis was withheld after 2 weeks and was discharged with Foley's catheter and other medications.



**Fig. 1:** Certofix R Duo V715, by B Braun, Germany,



**Fig. 2:** CVC Draining Urine (black arrow) after insertion by Seldinger Technique

### Discussion

DUC in cases of AUR are one of the most frequent reasons for urgent Urology consultation or intervention. Catheterization especially in males with enlarged prostate glands or other potentially obstructive conditions in the lower urinary tract can be difficult.<sup>1</sup> Repeated and unsuccessful attempts at urinary catheterization increases the risk of injury to the urethra with potential urethral stricture requiring

surgical reconstruction. Improper insertion of catheters also significantly increases healthcare costs due to added days of hospitalization, increased interventions, and increased complexity of follow-up evaluations.<sup>1</sup> Initial management of AUR involves prompt bladder decompression, by transurethral catheterization to establish drainage is appropriate for most patients. Urologic consultation and intervention are indicated in the event of initial DUC. The options for DUC include placement suprapubic or transurethral catheter under direct visualization of the urethra after assessing its etiology. Suprapubic catheter involves insertion of Foley balloon catheter or catheter without a balloon, which requires a suture to secure. The insertion of CVC by Seldinger technique for suprapubic urinary drainage is an alternative procedure for DUC if there are no options to avail emergency help.<sup>2,3</sup> In a study by Eissa Bilehjani, Solmaz Fakhari, on utility of placement of suprapubic CVC in DUC, the procedure was done with excellent success rate (100%) in short time no more than 10 minutes, without any complications, in patients undergoing cardiac surgery.<sup>2</sup> CVC for suprapubic drainage was performed in patients with failed transurethral catheterization after a few attempts (2–3 attempts).<sup>2</sup>

We present hereby a case of AUR/DUC, due to prostatomegaly and multiple co-morbidities; urosepsis, acute on chronic renal failure and uncontrolled diabetes mellitus. The AUR, in this case was successfully managed with suprapubic CVC initially, followed by Foley's catheter insertion under cystourethroscopy after stabilization.

## Conclusion

Nephrologists/ Intensivists/ Anaesthesiologists may use their skills for a safe insertion of CVC for suprapubic catheterization by Seldinger technique similar to vascular catheterization under ultrasound guidance in cases of DUC in emergency situations to tide over until availability of Urologist for its proper evaluation and treatment.

## Source of Funding

None.

## Conflict of Interest

None.

## References

1. Paul A. Willette, and Scott Coffield. Current Trends in the Management of Difficult Urinary Catheterizations. *West J Emerg Med.* 2012;13(6):472–8.
2. Eissa Bilehjani, Solmaz Fakhari. Using central venous catheter for suprapubic catheterization in cardiac surgery. *Res Rep Urol* 2017;9; 1–4
3. Chen CA, Chang YJ, Lio ML, Chiang HC, Wang BF, Chen PH. Sonography-assisted seldinger wire technique: A safe way of a suprapubic catheterization training program for rotating staff. *Urol Sci* 2019; 30:184-90.

**How to cite:** Lakshminarayana GR, Ummer SE, Muthukumar R, Raghunath KV. Use of Central Venous Catheter (CVC) as suprapubic catheter for Difficult Urinary catheterization (DUC). *IP J Urol Nephrol Hepatol Sci* 2020;3(3):72-3.