



# Tuberculosis Bug Everywhere in the Urinary Tract (Miliary Stricture) Resulting in a Rare Case of Obstructive Uropathy: A Case report

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**Keywords:** Genitourinary Tuberculosis bug; Obstructive uropathy ; Reconstructive procedure.

**Abbreviations:** PCN: Percutaneous Nephrostomy; CIC: Continuous Intermittent Catheterization; PUJ: Pelvic Ureteric Junction Stricture.

## Introduction

Tuberculosis continues to be an important public health problem in our country. Kidney is usually the primary organ infected in urinary disease, and other parts of the urinary tract become involved by direct extension. No reliable epidemiological data are available from India regarding its prevalence. Timely diagnosis and treatment will prevent the late sequelae of this disease. Advanced Genitourinary tuberculosis can cause renal scarring, distortion of renal calyces and pelvic, ureteric strictures, steno-

## Abstract

Genitourinary Tuberculosis (GUTB) is the second most common form of extrapulmonary TB after lymph nodes. Extensive tubercular involvement of urinary tract may lead to auto-nephrectomy, pan-ureteral strictures, thimble bladder (capacity <20mL) and rarely urethral strictures or a combination of these. Management of cases with involvement of multiple strictures at multiple sites is challenging. We report a rare case of tuberculosis bug involving right puj stricture, left vuj stricture, small capacity bladder and urethral stricture with resulting obstructive azotemia. No such obstructive stricture from kidney to urethra is reported in literature and we want to introduce a new term as Miliary stricture (disseminated form) for such presentation. A single sitting procedure in the form of ileal ureter replacement for right puj stricture as ileocalcicostomy, left ureteric reimplantation for vuj stricture, augmentation cystoplasty for thimble bladder and optical internal urethrotomy for urethral stricture with successful outcome.

sis, urinary outflow tract obstruction, hydroureter, hydronephrosis, renal failure and reduced bladder capacity.

## Case presentation

A 35-year-old male married who presented with irritative voiding symptoms with sterile pyuria. Ziehl–Nielson staining was positive for acid-fast bacilli. Ultrasonography showed bilateral grade-I-II hydronephrosis with hydroureter (L>>R). NCCT urogram revealed left hydroureteronephrosis and right hydro-



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nephrosis with features of azotaemia. (creatinine- 4 mg/dl and urea- 68 mg and had oliguria).Bilateral percutaneous nephrostomy (PCN) was performed and standard antitubercular treatment was started with stabilization of azotaemia and the creatinine level maintained at 1.5 mg/dl. Rt PCN output was 900ml for 24 hrs and left PCN output was more than 1800 ml for 24 hrs. Nephrostogram revealed left ureterovesical junction obstruction and right pelvi-ureteric junction obstruction. RGU revealed a stricture at bulbar urethra with no contrast going into bladder. Bladder capacity/assessment was not possible pre-op by any means (Figure 1). After 4 months of completion of ATT with normalization of kidney function test, preoperatively nutrition-

al status was addressed with additional high protein diet, and to support protein anabolism for successful outcome of single staged procedure in such patients. He underwent a single stage procedure with intraoperative findings as cork screw rt ureter with extensive scarring at puj area with only functioning lower pole with hydrocalcosis of middle and upper pole, thimble bladder with hardly capacity of around 80 ml, complete obstruction at left lower ureter. He underwent Visual Internal Urethrotomy followed by Augmentation cystoplasty with right ileal ureteral replacement as ileocalicostomy and left ureteroneocystostomy at single stage (Figure 2). Post operatively he behaved well and was discharged on 10th POD. Cystogram was done after 2 wks followed by catheter removal and patient was advised to do regular CIC. Bilateral DJ Stent was removed after 6 wks and repeat CECT urogram was done after 3 months of reconstructive surgery (Figure 2). On follow up at 3 and 6 month and 1 year his creatinine is stabilized at 1.5 to 2 mg/dl and is on regular CIC.



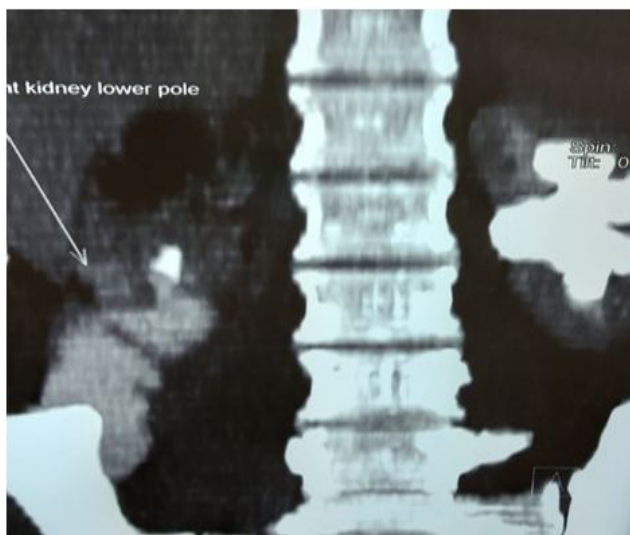
**Figure 1:** Extensive involvement of whole urinary tract, Rt. arrow Complete block at puj area. Lt. arrow Complete block at vuj area Arrow at urethra Complete block at bulbar urethra.



**Figure 2a:** Ileal ureter with ileocalicostomy with ileoneocystostomy.

**Discussion**

Tuberculosis (TB) is the most common cause of death from infectious disease worldwide. Active genitourinary tuberculosis presents 5 to 25 years after the primary infection. So it is uncommon in young children. Eight to 15% of patients with pulmonary tuberculosis are supposed to be at risk of developing GUTB [1]. Patients may normally present with symptoms referred to the organ involved or may have long-standing, unexplained urological symptoms. Genitourinary Tuberculosis (GUTB) is the second most common form of extrapulmonary tuberculosis after lymph node involvement [2]. Advanced GUTB frequently associated with unilateral or bilateral renal damage, poorly compliant bladder and very rarely involve the urethra with resultant bladder outlet obstruction [3]. Staged reconstruction may be preferred in view of advanced GUTB and also to reduce the magnitude of combined single stage procedure. However in our case we prefer a single stage procedure as his kidney function was optimized and 4 months of completion of ATT with adequate high protein diet was supplemented preoperatively, his serum albumin at the time of surgery was 4.5 mg/dl, conditioning stronger patient to withstand single procedure. Wong et al [4] reported combined caecocystoplasty and ileal ureter in three patients. Studer et al [5] used ileum for bladder augmentation and intact isoperistaltic ileal limb to replace ureters. In our case report we have used an 60 -70 cm ileum for reconstructive procedure as soperistaltic ileal loop with ileocalicostomy at upper end and



**Figure 2:** Right lower pole with ileocalicostomy.

ileo neocystostomy (Figure 2) and for bladder augmentation. Patient is on regular follow up for the last 2 years with stable renal function and is on regular CIC. We believe that single stage reconstruction of entire urinary tract for advanced GUTB can be safely performed in a single stage and avoids repeated hospital admissions, surgery related morbidity and improves patient self esteem and confidence to socialise there by having a positive impact on overall well being.

### Conclusion

Extensive involvement of whole urinary tract mandates early intervention for stabilization of renal function with multiple reconstructive procedures. Pre-operatively nutrition therapy and good physiological reserve, a single stage procedure can be safely performed with good outcome. Such extensive stricture at multiple outflows from kidney to urethra a term miliary stricture is appropriate.

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