



## SPECTRUM OF URINARY TUBERCULOSIS A RETROSPECTIVE STUDY DURING COVID ERA- OUR INSTITUTE EXPERIENCE

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### ABSTRACT

**Introduction:** Tuberculosis (TB) is the most common cause of infection related death globally. Around 5 to 45% of TB cases have extra -pulmonary manifestation and in those 30-40% cases involve the urogenital tract. However Urinary tract TB occurs more frequently when compared to genital TB. **Aims And Objectives:** we aimed to analyse demographic data, clinical manifestations, laboratory findings, serological, urological profile of patients of urinary Tuberculosis and its management in our institute, Government stanley medical college hospital, Chennai during COVID – pandemic April 2020 to July 2021 **Materials and Methods:** Retrospective analytical study was conducted in our tertiary care stanley medical college hospital over a course from April 2022 to July 2021. Demographic data, clinical characteristics, laboratory and radiologic findings, histopathology reports and management of patients were recorded. **Results:** During the period of April 2022 to July 2021 study a total of 36 cases were recorded as urinary tuberculosis. The male and female ratio was 2:1. The mean age of presentation is 36 years(67%). Prevailing symptoms were irritative lower urinary tract symptoms(67%), constitutional symptoms (24%), and flank pain (9%). urine for AFB positive in 53%, urine polymerase chain reaction positive in 17%, 17% positive for MTB culture in urine and 13% positive in HPE who under gone bladder biopsy. Most common organ affected urinary bladder 54%, and kidney 46%. Laboratory findings including blood count, acute phase reactants, renal function test, result of urine analysis, urine sediments, and urine culture were recorded. 67% patients had proteinuria, 62% had pyuria and 49% had hematuria. Abnormal imaging findings computed tomography KUB showed hitched pelvis, irregular caliectasis, pipe stem ureter made out in 45%, intravenous pyelogram (erosion of tip of calyx, incomplete pelvis distortion etc) 34% and on direct urinary tract radio graphy (extensive dystrophic calcification in kidney) 1%.

**KEYWORDS :** UTB- urinary tuberculosis, AFB- acid fast bacilli, HPE- histopathological examination ,IVU-Intra venous urogram

### INTRODUCTION

The diagnosis of urinary Tuberculosis is often delayed due to symptoms and signs often being masked by another disease, usually a urinary tract infection. Resistant or recurrent urinary tract infections should be tested for urinary tuberculosis without delay. Following pulmonary Tuberculosis, around 2 to 20% of individuals may develop genitourinary tuberculosis after a latency of 5 to 40 years. More than 90% of urinary tuberculosis cases occur in developing countries. Urinary Tuberculosis is important as it is often diagnosed late and this delay can lead to complications such as urethral or ureteric strictures, renal abscess, renal failure and infertility. Urinary tuberculosis is usually caused by infection with Mycobacterium. tuberculosis. It is also caused by other species including mycobacterium bovis, M.africanum, M..microti..Hematogenous seeding of bacilli in the kidney at the time of primary TB infection leads to granuloma formation in proximity to glomeruli often can caseate and rupture into tubule. subsequently tuberculous bacilli can enter the medullary interstitium leading to progressive medullary injury. Destruction of Renal papillae can lead to calyceal ulceration or formation of abscess. Involvement of collecting system may result in fibrotic scarring and stenosis. The onset of urinary Tuberculosis is insidious, presenting with malaise and lower urinary tract symptoms, including dysuria and gross hematuria. Systemic symptoms (fever, weight loss) are relatively rare, since the rupture of the glomerular granuloma occurs independently of disease activity in other sites.

### MATERIALS AND METHODS:

In a retrospective study, we reviewed the data of 36 patients

who had been treated as in patients for urinary tuberculosis at government stanley medical college hospital from April 2020 to July 2021. The diagnosis of urinary Tuberculosis was made by the presence of any clinical finding plus positivity of one of the following (1) Acid fast bacilli in urine (2) Isolation of M. Tuberculosis (3) PCR polymerase chain reaction positive for M. TB, (4) Gene expert positive for TB. Three consecutive early morning urine sample was sent for AFB, cystoscopic washings for GENE XPERT, bladder biopsy for HPE and urine for culture. Basic laboratory investigations were done including complete hemogram, renal function tests, ESR, liver function tests. Imaging included X Ray KUB, CT KUB, CT UROGRAM (if Renal parameters normal) and IVU.

**Inclusion Criteria:** urinary tuberculosis between 18 to 70 years

**Exclusion Criteria:** urinary tuberculosis < 18 years, genital tuberculosis such as pelvic inflammatory disease, tuberculous epididymitis, tuberculous scrotal sinus.

### Statistical Analysis:

The data was entered in Excel and analysed in STATA16. Descriptive statistics was used to summarise the individual characteristics.

### RESULTS:

From April 2020 to July 2021, total of 36 patients with urinary tuberculosis were recruited. Among them 27(75%) were male and 9(25%) were female. The mean age of the participant was 36 years.

**FIGURE 1: DEMOGRAPHIC DISTRIBUTION**



Male:75% Female:25%

**FIGURE 2: % ORGAN INVOLMENT**



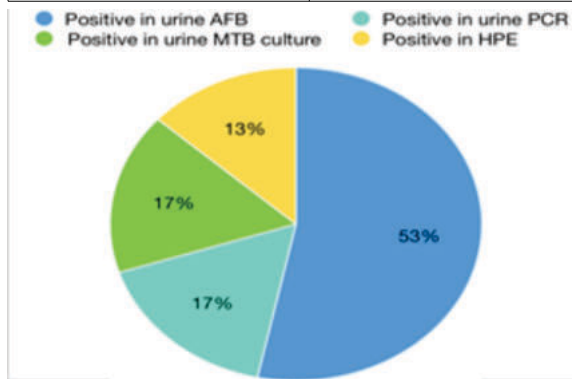
Urinary Bladder:55% Kidney:36%

**Table 1: Clinical Findings In Utb Patients**

Irritative voiding symptoms	67%
Constitutional symptoms	24%
Flank pain	9%

**Table 2: Lab Values In Utb Patients**

Anemia	82%
Raised ESR	72%
Hypoalbuminemia	60%
Leucocytosis	44%
Impaired renal function	37%
Thrombocytosis	25%
Hyponatremia	49%
Hypercalcemia	21%
Hypokalemia	20%
Proteinuria	67%
pyuria	62%
Hematuria	49%

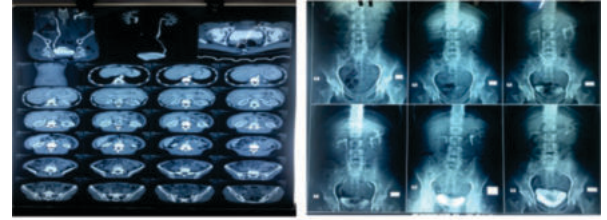


**Figure 3: Lab Utb Specific Investigation**

**Table 3: Imaging Findings In Utb Patients**

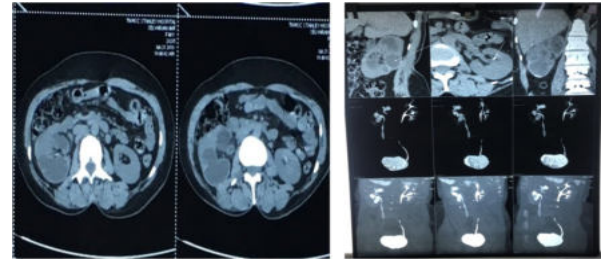
X KUB	1%
IVU	10%
CT KUB	33%
CT UROGRAM	56%

Diagnostic imaging showed Renal parenchymal disease with or without signs of chronicity- Non functioning kidney, pyelitis, pyelonephritis/pyonephrosis. Urinary tract calcification, dilatation/thickening. Urinary bladder wall thickening,



LEFT URETERIC STRICTURES

**Image 1**



RIGHT HUN WITH INFUNDIBULAR STENOSIS

**Image 2**



BEADED APPEARANCE OF LEFT URETER

**Image 3**



POST DIAGNOSTIC CYSTOSCOPY WITH WASH AND DJ STENTING

**Image 4**

**DISCUSSION:**

The WHO recommends 6 month regimen for Urinary Tuberculosis, including an intensive phase of 2 months with isoniazid (5mg/kg), Rifampicin(10mg/kg), pyrazinamide (25 mg/kg)and ethambutol(20mg/kg) followed by a continuation phase of 4 months with either isoniazid and Rifampicin. The appropriateness of corticosteroid treatment in patients with UTB at high risk of ureteral strictures is still debated. In uncomplicated patients, the standard treatment is Anti Tuberculous treatment. There is still considerable controversy regarding the best surgical treatment and a standardized plan does not exist. The optimal timing for surgery is controversial. Some authors suggest a delay of 2-6 weeks after the initiation of medical management upto 9 months in some cases. This strategy makes it possible to reduce active

inflammation and to stabilize lesion. In patients presenting with hydronephrosis due to vesico ureteral junction obstruction, ureteral or pelvic ureteral junction Obstruction drainage by ureteral stent or nephrostomy should not be postponed. In our study due to covid pandemic, limited resources availability all patients started ATT but surgical intervention done in only selected cases. Ureteroscopic DJ stenting done in 34%, diagnostic cystoscopic washings and bladder biopsy in 18% and percutaneous nephrostomy in 10%. Despite dreadful Covid pandemic outburst our hospital made strategy to provide surgical management for selective cases, thus provided medical care efficiently.

#### CONCLUSION:

Urinary Tuberculosis is slow but continuous infection causes a destruction of Renal parenchyma and healing process leads to renal parenchymal loss. If identified early and treated properly, UTB is a curable condition. During Covid period due to lack of resources and difficulty in health care accessibility, serology and urine biochemical studied and imaging played an important role in making of a timely diagnosis and in planning of treatment. It helped to avoid complications. Serodiagnosis can help in early diagnosis, response measurement to treatment and early detection of relapse. Multidisciplinary approach is crucial to provide optimal patient care. Tuberculosis medications remain the corner stone of treatment and surgical management was reserved for specific indications during covid Era such that health system can deliver health services without interruption.

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