

## Information for Urologist

# Genito-urinary Tuberculosis

*Genito-urinary tuberculosis* is a common type of tuberculosis involving the genito-urinary organs. The pathogenesis is almost always secondary to tuberculosis elsewhere, specially pulmonary tuberculosis.

### SIGNS AND SYMPTOMS

Even though symptoms are low grade or lacking, the diagnosis can be easily made when considered. Urinary symptoms (dysuria, gross hematuria, and flank pain) are present in 71% of patients, but constitutional symptoms are uncommon, and 20% of patients are entirely asymptomatic. Urinary findings are abnormal in 90% of cases, consisting of gross or microscopic hematuria or pyuria. "Sterile pyuria" is said to be typical renal tuberculosis.

### COMPLICATIONS

Tuberculosis affects mainly sites in urogenital system. Ureteral structures are one of the common presentations but the common site of ureteric structure is at the uretero vesical junction, but they also occur at the pelviureteric junction, rarely in the middle third of ureter and very occasionally the whole ureter is stenosed, fibrotic and even calcified. Majority (80%) of advanced cases of renal disease are associated with involvement of female and male genital organs. Male genital tuberculosis may involve prostate, seminal vesicles, epididymis and testis. Oligospermia is common and may lead to infertility. The diagnosis of male genitourinary tuberculosis is seldom apparent until the disease is far advanced. The earliest clinical symptoms in most cases are epididymitis, dysuria and hematuria. Infertility is an uncommon first sign of male infertility, but may be a clue to early diagnosis. Female genital tuberculosis may involve ovary, endosalpinx and rarely cervix, producing granulomatous lesions. The incidence of tuberculosis in India amongst women attending the infertility clinics is as high 37% which is much higher than the western counterpart.

### LABORATORY DIAGNOSTIC TESTS FOR GENITO-URINARY TUBERCULOSIS

#### Non-specific

Blood	Raised ESR
Urine	Routine Microscopy-Pyuria and Hematuria Routine Culture-Sterile
Semen	Azoospermia, Leuko-cytospermia

#### Specific

There are various specific tests for diagnosis of Genito-urinary Tuberculosis

ZN Staining	<30% sensitivity for Genito-urinary Tuberculosis
Culture	(LJ Culture, Radiometric Culture) sensitivity approx. 40-50% for Genito-urinary Tuberculosis
Histopathology	Sensitivity 30-50% for Genito-urinary Tuberculosis
PCR	Sensitivity of 95% for Genito-urinary Tuberculosis

## COMPARISON OF VARIOUS DIAGNOSTIC ASSAYS FOR TUBERCULOSIS INFECTION

TYPE OF TEST	ADVANTAGE	DISADVANTAGE
AFB Microscopy	Economical, early result, easy availability	Poor sensitivity (<30%)
AFB(MGIT-320) Culture	highly specific, Drug sensitivity can be performed	Result in 2 weeks (avg), very expensive, instrument, not easily available everywhere, sensitivity only 70-80%
Histo-Pathology	Economical and early result	Low sensitivity (30-50%), Non-specific, granulomatous lesions can be found in other diseases like sarcoidosis, actinomycosis, histoplasmosis, foreign body (Copper-T) etc.
PCR	Quick, Highly sensitive and specific (95%)	Need high skilled persons

## COLLECTION OF SAMPLES FOR GENITOURINARY TB DIAGNOSIS

Specimen	Collection	Min. volume	Storage	Transportation
Urine	First morning whole urine (3 days)	10 ml	4°C	In cool gel pack box
Pelvic Fluid	In sterile container	5 ml	4°C	In cool gel pack box
Genito-urinary tract biopsy	In sterile normal saline	As much as possible	4°C	In cool gel pack box
Semen	5-7 day abstinence	-	4°C	In cool gel pack box
Paraffin embedded tissue	-----	-	RT	In cool gel pack box

Test Name	Report ready by
AFB-detection by smear examination	Same day
Rapid AFB Culture	1st Report-End of 1st week, 2nd Report-End of 6th week OR whenever culture turns positive
RT-PCR for M.tuberculosis	Tuesday & Friday
Duplex PCR for M.TB & MOTT	Tuesday & Friday
TB-MDR Screen	Wednesday & Saturday
AFB-GenoType CM (Common Mycobacteria) SCREEN	Wednesday & Saturday
Rapid Differentiation Between MTB & MOTT(from culture)	Same day
MTB Drug Sensitivity (1st line Drugs)	15th day
MTB Drug Sensitivity (2nd line Drugs)	15th day

### References :-

- Zajaczkowski T. Genitourinary tuberculosis: historical and basic science review: past and present. Cent European J Urol. 2012;65(4):182-7
- Bhanothu V, Theophilus JP, Rozati R. Use of endo-ovarian tissue biopsy and pelvic aspirated fluid for the diagnosis of female genital tuberculosis by conventional versus molecular methods. PLoS One. 2014 May 21;9(5):e98005