

# A Retrospective Study Evaluating The Role Of Surgical Intervention In Genitourinary Tuberculosis

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## Abstract

**Aim:** The aim of the present study was to assess the role of surgical intervention in Genitourinary Tuberculosis.

**Material & methods:** This retrospective study was conducted in Department General Surgery of our institution. A total of 50 patients diagnosed as GUTB were admitted and these patients were undergone surgery for different indication, for the duration of 2 years.

**Results:** Out of 50 patients 24 (48) were male and 26 (52%) were female. The mean age was 35.05 years with a range from 16 to 78 years. Most common presentation was storage symptoms and it was present in 17 (34%) and followed by hematuria in 15 (30%). Other symptoms were pain (23%), acute retention (4%) and perineal discharge (4%). Bacteriological confirmation was possible in 2/3rd cases from urine for acid fast bacilli (AFB) smear and culture. Others were diagnosed on biopsy or by radiological finding. Ileal cystoplasty and nephrectomy were done in 15 cases each (30%). Ileocystoplasty combined with other procedure done in 6 cases. Ilea ureter, transurethral resection of prostate (TURP) and repair of urethrocutaneous fistula were done in 2 cases each.

**Conclusion:** A significant number of individuals with genitourinary tuberculosis (GUTB) are often detected at an advanced stage, with structural impairment of the urinary tract. Therefore, a surgical procedure in conjunction with antitubercular medication is necessary. Whenever feasible, it is advisable to maintain the kidney.

**Keywords:** Tuberculosis, Genitourinary, Surgery

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## I. Introduction

Tuberculosis, although being prevalent worldwide, is a major contributor to illness and death in India and other developing countries in Southeast Asia. In 2018, the World Health Organisation (WHO) documented 2.69 million new instances of a certain condition in India, with an annual occurrence rate of 199 cases per 100,000 people.<sup>1</sup>

Genitourinary tuberculosis (GUTB) is the second most often occurring form of tuberculosis outside of the lungs and is particularly widespread in India. Extrapulmonary tuberculosis (EPTB) is a frequently observed type of tuberculosis that occurs when TB microorganisms spread through the bloodstream during the initial infection and affect the kidneys. This spread typically happens from active or dormant infection sites in the lungs.<sup>2</sup> The condition has an equal impact on both men and females and is often seen during the fourth decade of life.<sup>3</sup> The insidiousness of the onset and the difficulties in identification might result in a delay in receiving therapy. This may lead to significant consequences, such as kidney damage or severe inflammation of the urinary bladder.

The term GUTB was introduced by Wildbolz in 1937 and represents 5-20% of all cases of tuberculosis that occur beyond the lungs. While the occurrence has diminished in wealthy nations, it remains widespread in poor and undeveloped countries.<sup>4</sup> Early detection and prompt medical intervention can effectively avoid the long-term complications associated with this condition, such as renal dysfunction and urinary bladder atrophy.<sup>5</sup> The urologist still has a hurdle in dealing with GUTB. Due to the complexity of diagnosing GUTB and the limited effectiveness of current investigations, the disease often remains asymptomatic for a significant period of time before chemotherapy is started. This delay in treatment can result in abnormal and impaired anatomical changes in the genitourinary tract.<sup>6</sup>

The insidiousness of the onset and the difficulties in identification might result in a delay in receiving therapy. This may lead to significant consequences, such as kidney damage or severe inflammation of the urinary bladder. Despite the presence of effective antituberculous drugs, surgery remains crucial in the treatment of UGTB. Surgery may entail removal of damaged tissue such as nephrectomy or epididymectomy or as a

reconstructive treatment such as enterocystoplasty and ureteric reimplantation in instances with ureteric or urethral strictures and constricted bladder.<sup>7</sup>

Patients initially exhibit non-specific lower urinary symptoms, which often results in a delay in diagnosis. Simultaneously, the mycobacterium gradually deteriorates the urinary system through either a caseous or fibrosing response, necessitating surgical intervention in over 50% of patients during their lifetime.<sup>8</sup> This study evaluated the role of surgical intervention in treating patients with genitourinary tuberculosis.

## II. Material & Methods

This retrospective study was conducted in Department of General Surgery of our institution, A total of 50 patients diagnosed as GUTB were admitted and these patients were undergone surgery for different indication, for the duration of 2 years.

Data were collected from departmental register in a predefined proforma. Patient's data were entered into follow-up schedule 3 months after the operation and they were examined bi-annually. Analysis done with standard statistical analysis.

## III. Results

**Table 1: Clinical parameters of the patients**

Clinical characteristics of the patients		
Mean age	36.04	(r 16-78)
Sex	N	%
M	24	48
F	26	52
<b>Presentation</b>		
Storage symptoms	17	34
Hematuria	15	30
Pain	48	24
Acute urinary retention	2	4
Urine leaking from fistulous site	2	4
<b>History of tuberculosis</b>	46	23
<b>Procedure</b>		
Reconstructive surgery	34	68
Extirpative surgery	16	32
<b>complications</b>		
Wound infection	2	1
Persistent chronic discharge	1	0.5
Fever	1	0.5

Out of 50 patients 24 (48) were male and 26 (52%) were female. The mean age was 35.05 years with a range from 16 to 78 years. Most common presentation was storage symptoms and It was present in 17 (34%) and followed by hematuria in 15 (30%). Other symptoms were pain (23%), acute retention (4%) and perineal discharge (4%). Bacteriological confirmation was possible in 2/3rd cases from urine for acid fast bacilli (AFB) smear and culture. Others were diagnosed on biopsy or by radiological finding.

**Table 2: Surgical procedures undertaken**

Procedure done	n	%
Nephrectomy	15	30
Ileocystoplasty	15	30
Ureteric Reimplatation	6	12
Ileocystoplasty + Nephrectomy	2	4
Ileocystoplasty + Nephrectomy+Ureteric Reimplatation	2	4
Ileocystoplast + Bilateral Ureteric Reimplatation	2	4
Ileal Ureter	2	4
TURP	2	4
Nephro Ureterctomy	2	4
Urethrocutaneous Fistula Repair	2	4

Ileal cystoplasty and nephrectomy were done in 15 cases each (30%). Ileocystoplasty combined with other procedure done in 6 cases. Ilea ureter, transurethral resection of prostate (TURP) and repair of urethrocutaneous fistula were done in 2 cases each.

#### **IV. Discussion**

Genitourinary tuberculosis (GUTB) is the second most often occurring form of tuberculosis outside of the lungs and is particularly widespread in India. Despite the existence of effective chemotherapy, which has reduced the mortality rate of pulmonary tuberculosis (TB), genitourinary tuberculosis (GUTB) remains a challenging condition for urologists. Due to the complexity of diagnosing GUTB and the limited effectiveness of current investigations, the disease often remains asymptomatic for a significant period of time before chemotherapy is started. This delay can result in abnormal and impaired anatomical changes in the genitourinary tract. Consequently, Surgery remains significant even with the availability of efficient treatment for TB. Approximately 55% of patients with GUTB are estimated to necessitate surgical intervention.<sup>8</sup>

Genitourinary tuberculosis is present in 15-20% of cases of pulmonary tuberculosis, with a prevalence rate of 400 per 100,000 individuals. Reconstructive surgery is necessary for cases of genitourinary tuberculosis (GUTB) that have severely distorted and dysfunctional anatomy, and are unlikely to improve with chemotherapy alone.<sup>9</sup> Reconstructive surgery plays a role in the treatment of GUTB, even though effective anti-tuberculosis therapy is available. Reconstructive bladder surgery encompasses a range of procedures that can be tailored to suit the specific indications in each patient. The condition has an equal impact on both males and females and is most prevalent during the fourth decade of life.<sup>10</sup> Among the 50 patients, 24 (48%) were male and 26 (52%) were female. The average age was 35.05 years, ranging from 16 to 78 years. Most common presentation was storage symptoms and it was present in 17 (34%) and followed by hematuria in 15 (30%). Additional symptoms included pain (23%), acute retention (4%), and perineal discharge (4%).

Often, endoscopic and surgical procedures are required to obtain specimens for bacteriological studies and histopathology. because of few and non-specific symptoms and insidious disease course, it is more often underestimated by clinicians and remains undiagnosed for several weeks to months leading to structural changes in the genitor-urinary tract. Therefore, surgery remains necessary in a significant number of cases. It is a serious disease with a characteristic multifocal organ and extensive lesion.<sup>11</sup> Kidney, ureter and bladder are affected in 75% of cases without genital involvement.<sup>9</sup> Bacteriological confirmation was possible in 2/3rd cases from urine for acid fast bacilli (AFB) smear and culture. Others were diagnosed on biopsy or by radiological finding. Ileal cystoplasty and nephrectomy were done in 15 cases each (30%). Ileocystoplasty combined with other procedure done in 6 cases. Ilea ureter, transurethral resection of prostate (TURP) and repair of urethrocutaneous fistula were done in 2 cases each. Endoscopic approach is advised by some authors as very effective means to deal such cases.<sup>12</sup> Patients with a polar mass lesion, a lesion distant from the hilum, or focal calcification not responding to ATT may be considered for partial nephrectomy.<sup>13</sup> Traditionally, nephrectomy is indicated in non-functioning or poorly-functioning symptomatic renal TB or asymptomatic kidney complicated by hypertension, diffuse calcification or coexisting renal cell carcinoma. Nephrectomy for asymptomatic patients with a cicatrized kidney is still under debate. In a study by Kerr et al., the authors showed that despite urine being sterile following chemotherapy, 50% of patients still harboured active bacilli in the nephrectomy specimen which could reactivate later. They recommend nephrectomy in all asymptomatic non-functioning kidneys to avoid the reactivation of the dormant foci.<sup>14</sup> Considering chances of reactivation, we too are of the opinion that all non-functioning tuberculous kidneys should be removed as recommended by other Indian experts as well.<sup>15</sup>

#### **V. Conclusion**

A significant number of individuals with genitourinary tuberculosis (GUTB) are often detected at a later stage, when there is already structural damage to the urinary system. Therefore, a surgical procedure in conjunction with antitubercular medication is necessary. Whenever feasible, it is imperative to save the kidney. Based on our experience, extirpative surgery is necessary in around one-third of patients to relieve symptoms or eliminate the condition. Reconstructive surgery, in conjunction with medical therapy, manages two-thirds of the cases. By using enhanced multidrug treatment and reconstructive surgery, it is feasible to get a good result.

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