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Research Article

Role of surgical intervention in genitourinary tuberculosis in the era of modern anti-tubercular chemotherapy.

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Abstract: Genitourinary tuberculosis (GUTB) is an important public health problem in India. Surgery still has a role in management of GUTB. Both reconstructive surgery and extirpative surgery are required to manage the sequel of the disease. We present our experience of role of surgery in managing such cases.We retrospectively reviewed 21 cases of GUTB in our institution from January 2009 to December 2013. Mode of presentation, investigations, treatment received and follow-up were studied. There were 21 patients including 10 male and 11 female with mean age of 36.04 years. Storage symptom was predominant presentation followed by hematuria. Bacteriological confirmation was possible in 2/3rd cases. Seven patients needed extirpative surgery and reconstructive surgery was done in rest 14 patients. Many patients of GUTB are diagnosed late with structural damage of the tract. So surgery along with antitubercular drug is needed. Kidney should be preserved whenever possible. With improved multidrug therapy and reconstructive surgery satisfactory outcome is possible.
Keywords: tuberculosis, genitourinary, surgery.

INTRODUCTION

Genitor-urinary tuberculosis (GUTB) is the second most common extra pulmonary tuberculosis and is more prevalent in India. Although, the available effective chemotherapy now a day reduces the mortality of pulmonary tuberculosis (TB), GUTB still poses a challenge to the urologist. Because of GUTB diagnosis are not straight forward and the low yield of current available investigations, the disease remains subclinical for long time before initiation of chemotherapy, that leads to distorted and dysfunctional anatomical changes in the genitor urinary tract. Therefore, Surgery still continues to play a major role despite effective chemotherapy for tuberculosis. It is estimated that approximately 55% of patients with GUTB require surgical intervention [1].

In this study, we assessed the role of surgical intervention in GUTB. Both ablative and reconstructive surgery have role to eradicate the disease and prevent relapse as well as to preserve or to restore the function of the organs.

MATERIALS AND METHODS

This retrospective study was conducted in Department of Urology of our institution, a tertiary care center of West Bengal, India. A total of 35 patients diagnosed as GUTB were admitted and out of which 21 patients were undergone surgery for different indication, from January 2009 to December 2013. Data were collected from departmental register in a pre-defined proforma. Patient's data were entered into follow-up schedule 3 months after the operation and they were examined bi-annually until December 2014. Analysis done with standard statistical analysis.

RESULTS

Out of 21 patients 10 (47.62) were male and 11 (52.38%) were female. The mean age was 36.04 years with a range from 16 to 78 years. Table 1 summarizes the clinical parameters of the patients. Most common presentation was storage symptoms and It was present in 7 (33%) and followed by hematuria in 6 (28.57%). Other symptoms were pain (23.80%), acute retention (4.76%) and perineal discharge (4.76%). 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. Positive family or personal history of tuberculosis was present in 5 cases. All but two patients received 6 months of antituburcular drug (ATD) therapy. Category 2 treatment was given in two defaulter cases.

Table-1: clinical parameters of the patients

Clinical characteristics of the patients		**N=21**
Mean age	36.04	(r 16-78)
Sex		
M	10	
F	11	
Presentation		
Storage symptoms	7	33.33%
Hematuria	6	28.57%
Pain	5	23.80%
Acute urinary retention	1	4.76%
Urine leaking from fistulous site	1	4.76%
History of tuberculosis	5	23.81
Procedure		
Reconstructive surgery	14	66.67
Extirpative surgery	7	33.33
complications		
Wound infection	2	
Persistent chronic discharge	1	
Fever	1	

The surgical procedures that were undertaken are summarized in Table 2. Ileal cystoplasty and nephrectomy were done in 6 cases each (28.57%). Ileocystoplasy combined with other procedure done in 3 cases. Ilea ureter, transurethral resection of prostate (TURP) and repair of urethrocutaneous fistula were done in 1 case each.

Table-2: Surgical procedures undertaken

Procedure done	**n**	**%**
Nephrectomy	6	28.57
Ileocystoplasy	6	28.57
Ureteric Reimplatation	2	9.52
Ileocystoplasty + Nephrectomy	1	4.76
Ileocystoplasty + Nephrectomy+Ureteric Reimplatation	1	4.76
Ileocystoplast + Bilateral Ureteric Reimplatation	1	4.76
Ileal Ureter	1	4.76
TURP	1	4.76
Nephro Ureterctomy	1	4.76
Urethrocutaneous Fistula Repair	1	4.76

Post operative discharging sinus from surgical incision side was developed in one case, which was diagnosed TB and patient received category 2 ATD**.** Three patients out of 9 cases of bladder augmentation needed intermittent catheterization

DISCUSSION

Tuberculosis (TB) remains one of the major health problems in India. It accounts for a quarter of the world's annual incidence of TB. Every year around two million people develop TB in India and 300,000 die of TB. In developing countries GUTB accounts for 15% to 20% of cases of pulmonary tuberculosis comparing 2% to 10% of cases in developed countries [2].

Diagnosis is not always straight forward and sometime post operative histopathology reveals the diagnosis. Because of genital lesion and the paucibacillary nature of the disease, a presumptive diagnosis is frequently considered with several parameters of radiological imaging [3]. 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. So surgery is still needed in quite good number of cases. It is a serious disease with a characteristic multifocal organ and extensive lesion [4]. Kidney, ureter and bladder are affected in 75% of cases without genital involvement [5].

Kidney is the most commonly involved organ. The disease progresses slowly resulting in extensive necrosis of renal papillae. Frank cavities with tubercular abscess may form. Finally there is total destruction of renal unit. There are two mechanism by which kidney becomes non functioning; first, extensive parenchymal destruction and second, following multiple calyceal destruction, infundibular stenosis or ureteral stricture. Traditionally, nephrectomy is considered strongly to prevent late complications, such as draining flank sinuses, abscesses and hypertension [6, 7]. Recently with effective chemotherapy, the role of nephrectomy has been reassessed. Wechsler and associates found that nephrectomy is not mandatory in incidentally diagnosed, asymptomatic patients [8]. Gupta et al. reported an incidence of nephrectomy of 33% of the patients in their series [9]. In our series, 6 (28.57%) cases required nephrectomy for unilateral nonfunctioning kidney and in another two cases as additional procedure; which was almost equal to the earlier series Out of the 6 cases; one case was initially managed with PCN due to pyonephrosis and subsequently found to be gutb. Other cases are presented with flank pain, hematuria and diagnosed as non functioning or poorly functioning kidney. We believe any nonfunctioning TB kidney should be removed to prevent late complications and to remove the disease process and viable tubercular bacilli.

Ureteral TB is an extension of the disease from the kidneys. It usually affects the ureterovesical junction and rarely the middle and upper third of ureter. Occasionally, severe cases can cause stricture of the entire ureter. In one series, healing of GUTB leading to fibrosis and ureteral stricture in distal ureter was 56%, in mid ureter was 13% and in 17.19% had the multiple strictures [10]. In our study we found, isolated ureteric involvement in 4(19.04%) cases. 3 cases of VUJ stricture required ureteric reimplantation in 2(9.52%) and nephro-ureterectomy in 1(4.76%) for nonfunctioning kidney. Ileal ureter was done for strictured areas throughout the ureter in one case(4.76%). In another 2 cases ureteric reimplantation done as adjunct procedure along with ileocystoplasty. Endoscopic approach is advised by some authors as very effective means to deal such cases [11]. But our attempt was failed in both the cases because of dense fibrotic stricture. In third case endoscopic procedure never tried owing to nonfunctioning kidney.

Bladder TB is always secondary to renal TB and usually starts at the ureteral orifice .It generally results in patchy cystitis due to inflammation of the urothelium by the tubercle bacilli. Chronic granulamatous inflammation ultimately healed by fibrosis. This fibrosis is leading to contracture of the bladder. This contracted small capacity bladder fails to function as reservoir, leading to storage symptoms. Fibrotic bladder also increases high detrusor pressure during voiding and can result in the upper tract damage. These patients are managed by increasing bladder capacity to enable the patients to retain urine and restoration of low pressure bladder during voiding. These patients are sometime complicated with reflux, ureteric stricture or with nonfunctioning hydronephrotic kidney, and need additional procedures. In our study, we found 9(42.86%) cases of symptomatic contracted bladder. Out of 9, 3(14.29%) patients were complicated with bilateral reflux, nonfunctioning kidney of one side and nonfunctioning kidney with vesico-ureteric junction(VUJ) stricture of other side respectively. 6(28.57%) cases were underwent ileocystoplasty. Three cases needed additional procedures; bilateral ureteric reimplantation, nephrectomy and nephrectomy with ureteral reimplantation respectively. Gupta et al. in their series of 241 cases found similar rate of bladder involvement in 52.28% [5]. As GUTB involves multiple areas of genitourinary tract so additional procedure may require in addition to bladder augmentation. 22(out of 126) cases needed ureteric reimplantation for either VUR or VUJ stricture in one series [5]. In our study we found that in 14.29% cases need additional procedure, our finding is similar to available literature.

Prostate gland is very rarely infected with tuberculosis. The route of infection may be descending from urinary tract TB, direct extension or hematogenous. [12] But some author suggested that TB of the prostate is almost always the result of hematogenous seedlings. [13] Isolated prostatic TB may be asymptomatic or may present with lower urinary tract symptoms. Hematospermia can be only presentation [14]. Nodular prostate on digital examination may mimic malignancy. Most cases diagnosed on needle biopsy or after TURP. In present study, we found one case TB prostate (4.27%), incidentally detected on histopathology after TURP for bladder outlet obstruction.

Urethral TB is very rare. It is usually due to the spread from another focus in the genitourinary tract and the exact incidence is not known. Symes and Blandy reported 5 cases out of 112 cases of urethral stricture disease [15]. In our study, there was one case of urethral TB (4.76%) complicated with urethrocutaneous fistula. Similar case was reported by Indudhara et al [16].

CONCLUSION

Many patients of GUTB are diagnosed late with structural damage of the tract. So surgery along with antitubercular drug is needed. Kidney should be preserved whenever possible. Our experience suggests, in 1/3rd cases extirpative surgery needed to alleviate the symptoms or to render disease free. The 2/3rd cases managed by reconstructive surgery along with medical treatment. With improved multidrug therapy and reconstructive surgery satisfactory outcome is possible.

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