

Trends in genitourinary tuberculosis

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Abstract – One thirds of world's population is infected with tuberculosis with new infection occurring every second. In humans tuberculosis is primarily caused by Mycobacterium tuberculosis. Genitourinary tuberculosis (GUTB) is still a major health problem in many developing countries including India and had been declared by World Health Organization (WHO) as 'public health emergency' in 1993. In this study medical records of 40 patients admitted to a tertiary care hospital with diagnosed genitourinary tuberculosis were accessed. Majority of patients 95% (38/40) belonged to the low socioeconomic status and came from rural setting. Besides this we found a major gender inequality: 75% were female patients This is especially relevant to rural and low socioeconomic areas in developing countries where women's health is worse than men's (in terms of nutrition), women's risk of disease may be increased. Most of our patients were above 40 yrs of age and exhibited nonspecific symptoms like abdominal pain, distension, postprandial fullness, omitting, and constipation Specific genitourinary symptoms were few .Majority of the cases were diagnosed by histopathology and a combination of strong clinical, laboratory, and radiographic evidence of urogenital tuberculosis with negative bacilli search The sequelae of GUTB required major surgical corrections and leave significant sequelae

Keywords – Genitourinary tuberculosis, trends

1. Introduction

One thirds of world's population is infected with tuberculosis with new infection occurring every second [1]. In humans tuberculosis is primarily caused by Mycobacterium tuberculosis. Mycobacterium is a slow growing bacterium, which doubles its population in 18-24 hours. This slow doubling time explains the chronic nature of disease and that it disseminates before acute symptoms develop.

Pulmonary and extra pulmonary sites are known to be associated with Mycobacterium tuberculosis infection. Although the infection of M. tuberculosis usually results in pulmonary tuberculosis, other organs and tissues can also be affected, resulting in extra pulmonary or disseminated TB[2].The most common form of extra pulmonary TB is genitourinary tuberculosis (GUTB) accounting for 27% (range, 14 to 41%) worldwide[3]. Genitourinary tuberculosis is still a major health problem in many developing countries including India and had been declared by World Health Organization (WHO) as 'public health emergency' in 1993[4][5].It is a chronic disease , often has low-grade symptomatology with very few specific complaints. Tuberculosis of the female genital tract has a profound effect on fertility and increases the chances of ectopic pregnancies [6].

GUTB requires long-term antituberculous chemotherapy like pulmonary tuberculosis and other types of tuberculosis. The present study was undertaken to study the trends in genitourinary tuberculosis in our tertiary care hospital.

2. Materials and Methods

Records of all patients reporting to the hospital with proven genitourinary tuberculosis or diagnosed after coming to the hospital were accessed and data relevant to the

objectives noted. The data was analyzed using SPSS software and appropriate figures used to demonstrate relationships between the various parameters. Inclusion criteria: All patients with confirmed diagnosis of genitourinary tuberculosis were included in the study Exclusion criteria: Patients with tuberculosis (whether pulmonary or extra pulmonary) who did not have confirmed findings of tuberculosis in the genitourinary tract were excluded.

3. Results

3.1. Demographic Factors

A total of 40 patients with diagnosed genitourinary tuberculosis were included in the study. Most of them (38/40) belonged to the low socioeconomic status and came from rural settings 75% of patients were female and 25% males. Majority of patients (50%) were in the age group of more than 40 years. 45% were in the age group of 20-40 yrs while 5% of patients were less than 20 years (Figure 1)

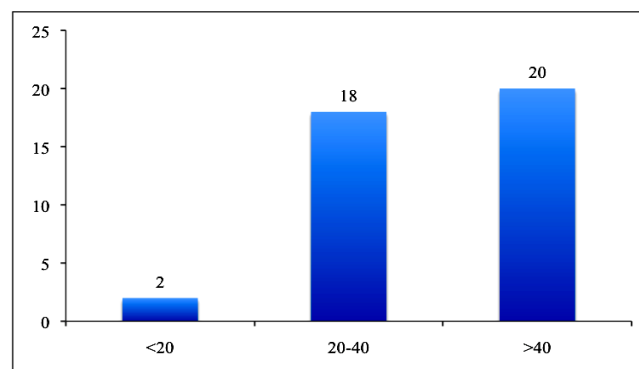


Figure 1. Age distribution

None of the patients in our study reported family history of tuberculosis.

3.2. Symptoms and Signs

In most of the patients the presenting symptoms were gastrointestinal like abdominal pain, distension, postprandial fullness, vomiting, and constipation. This was followed by urinary symptoms like frequency urgency and nocturia. Reproductive tract symptoms like menstrual disturbances were seen in only 5% of patients (Figure 2)

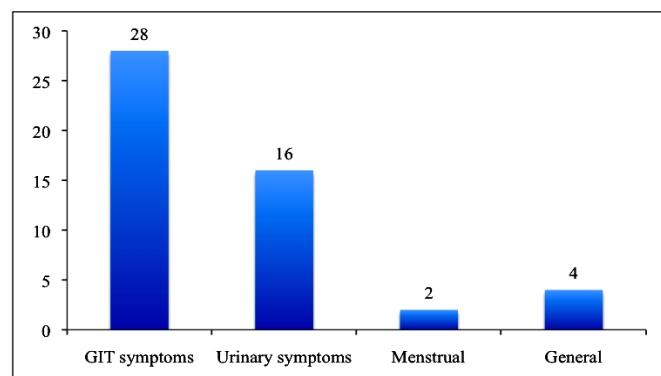


Figure 2. Symptoms in Genitourinary Tuberculosis (Some patients had symptoms pertaining to two or more systems)

3.3. Diagnostic Criteria

Urogenital tuberculosis was diagnosed by direct bacilli identification or culture growth in 25% patients; histopathology in 41.3 % patients; and a combination of strong clinical, laboratory, and radiographic evidence of urogenital tuberculosis with negative bacilli search in the urine of 33.7% patients. (Figure 3)

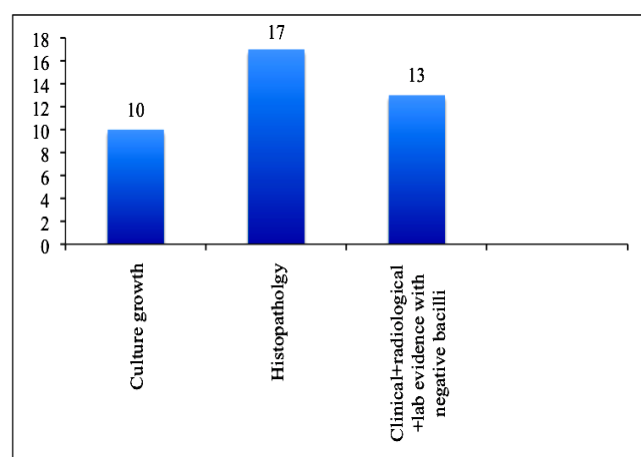


Figure 3. Use of diagnostic criteria in Genitourinary Tuberculosis

Besides these PPD was done in all the cases .ELISA was not done in any case and neither was PCR.

3.4. Treatment

HRZE (isoniazid, rifampicin, pyrazinamide and ethambutol) regime was started for all the patients on a daily basis. This was to continue for 2 months The next step planned was 4months of HRE regime and this was to be given under direct observation (DOTS) 3 times per week

75% of the patients were prescribed other antibiotics (as quinolones and metronidazole) due to coexisting infections

which in turn may have led to the uncovering of the tubercular element.

28% of patients were prescribed proton pump inhibitors.

5% of patients were on antihypertensive. One patient was prescribed corticosteroids after ureteric stenting to prevent fibrosis and ureteric constriction.

3.5. Surgery in GUTB

Among the patients in this series 45 %(18/40) underwent major surgeries These surgeries were a direct result of the sequelae of genitourinary tuberculosis. Out of all the patients who underwent surgery: 50% (9/18) had Nephrectomy, 33.3 % (5/18) had removal of T-O Mass, and 16.6 % (3/18) had ureteral reconstruction (Figure 4).

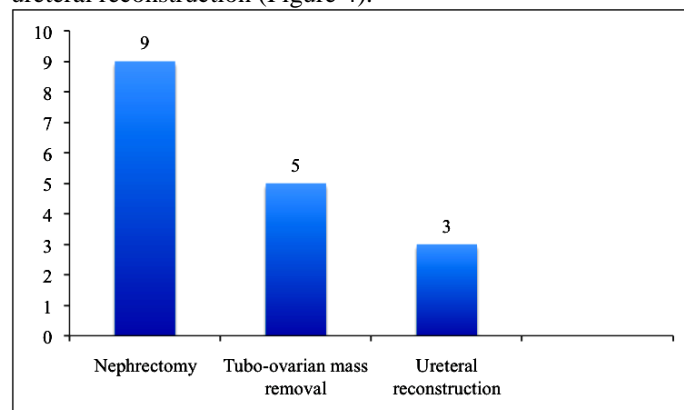


Figure 4. Surgeries in Genitourinary Tuberculosis

One patient had ureteric stenting with percutaneous nephrostomy as an emergency procedure.

4. Discussion

The global burden of tuberculosis remains enormous mainly due to poor control in South East Asia, Sub – Saharan Africa and Eastern Europe .Eighty percent of all tuberculosis cases were found in 22 countries with more than half the cases occurring in five Southeast Asian countries i.e. India, China, Indonesia, Bangladesh and Pakistan [7].

Mycobacterium is a slow growing bacterium, which doubles its population in 18-24 hours. This slow doubling time explains why the disease is chronic in nature and disseminates before acute symptoms develop.

4.1. Socioeconomic Factors

Tuberculosis is a socioeconomic disease[8] In our study most of the patients came from low socioeconomic status Several other such studies from around the globe also report similar findings[9][10][11].

In our study majority of the patients belonged to the age group above 40 This again is reflected in such studies around the world which report a mean age of 31-58yrs [8][9][10][11].This is probably because of long latent period between the primary infection with the tuberculosis bacilli and the expression of genitourinary symptoms The most common mode of transmission to the genitourinary tract is through hematogenous spread from pulmonary or other sites of tuberculosis. Genitourinary tuberculosis is a chronic disease and often has low-grade symptomatology with very few specific complaints. Genital organs most frequently affected include fallopian tubes (95-100%), endometrium (50-60%) and ovaries (20-30%) [12].Kidney is the most

commonly effected followed by ureter and bladder [9]. In 92% of cases genitourinary tuberculosis is secondary to focus in lungs, lymph nodes, bones and joints and manifests after a long latent period [12].

We found a wide gender inequality of genitourinary tuberculosis in our study (75% females) Other such studies especially from developing nation have also reported gender inequalities with female suffering more from this form of tuberculosis. This is an important factor in the control of this disease Gender differentials in social and economic roles and activities may lead to differential exposure to tuberculosis bacilli; The general health/nutritional status of TB-infected persons affects their rate of progression to disease. In areas where women's health is worse than men's (especially in terms of nutrition), women's risk of disease may be increased. A number of studies suggest that responses to illness differ in women and men, and that barriers to early detection and treatment of TB vary (and are probably greater) for women than for men [13].

4.2. Symptoms and Signs

In our study most of the patients have reported vague abdominal symptoms rather than organ specific symptoms This seems to be a universal finding in other such studies both in the developed and the developing countries[9][10][11][14][15].

The next commonly reported symptoms in this study were urinary with frequency being the most common This is again in agreement with most such studies which have elaborated other urinary symptoms as being commonly reported like hematuria, flank pain, frequency and dysuria as more prevalent[9][10][11][14][15]. This has been explained by many observers by the fact that even though kidney is the most frequently and primarily effected part of the urinary tract the renal lesions are mainly asymptomatic, and only vesical lesions lead to symptoms and storage symptoms predominate.

Genital symptoms are even more silent. In our study none of the males reported genital symptoms (like scrotal-perineal pain sinuses etc) and only 5 % of women reported menstrual symptoms. None reported vaginal discharge, although there might be possibilities that such symptoms would appear only at the time of flare-ups (due to co-infection), which may not have been specifically enquired about, from the patient.

Overviews of female genital tuberculosis have also reported paucity of menstrual symptoms (20%) with infertility being the most commonly reported symptom (55%) [16]. Our study is unable to comment on infertility as a symptom as most of such cases report to the infertility clinic and this study dealt with cases admitted for the treatment of genitourinary tuberculosis.

The usual constitutional symptoms such as fever, weight loss, and night sweats were reported in only 10% of our cases A varied incidence of these symptoms (ranging from 5-20%) have been reported in several such studies[9][10][11][14].

4.3. Diagnostic Criteria

Tuberculosis being a paucibacillary disease directly visualizing the bacteria is difficult and so would be the diagnosis if based only on that criteria In this study bacilli could be identified only in 25 % of the cases. The rest of the 75% were diagnosed on the basis of histopathology, radiographic and clinical evidence Other studies too state that in the absence of bacilli diagnosis is established on basis of

“caseating granulomata, intravenous pyelography, renal sonography and persistence of sterile pyuria” [9][10][11][14]. This amply illustrates the reason why such an array of diagnostic tests are available and used for diagnosis of tuberculosis. However since majority of these tests are inconclusive by themselves, a strong clinical suspicion is necessary for correct diagnosis. PPD was done in all of our cases but ELISA in none.

4.4. Treatment

In our series all were newly diagnosed TB and HIV negative. They were treated with 2 months of intensive daily treatment with HRZE and continuation treatment of 4 months with HRE thrice weekly under direct observation. The continuation phase was monitored by the DOTS center at our hospital. Ethambutol was continued in the continuation phase as Isoniazid susceptibility had not been done in our patients. In this series we did not encounter any drug resistant genitourinary tuberculosis Almost 75% of the patients had coexisting infections for which suitable antibiotics were used. Tuberculosis infection encourages fibrosis sealing off an old lesion which later flares up and becomes symptomatic as a result of superadded infection especially when resistance is low. In this context it is important to remember that Rifampicin is a hepatic enzyme inducer and increases the dose requirements for several drugs other antibiotics included.

4.5. Surgical Interventions

Genito urinary tuberculosis results in sequelae which may require major surgical corrections [17][18][19][20]. This is unlike pulmonary tuberculosis which is adequately managed by ATT alone Nephrectomy is indicated for nonfunctioning or poorly functioning kidneys, particularly if continuous flank pain or hypertension is present as was done in 5 of the cases in this series Stenosis of the ureter usually can be managed by temporary stenting and adjuvant corticosteroid therapy which if unsuccessful might need a ureteral reconstruction [21][22]. As a rule surgery is done after at least 3-4 months of optimal treatment with ATT but sometimes an emergency procedure like stenting and percutaneous nephrostomy may be needed as in one of our patients[21][23]. Out of the 5 patients who underwent removal of TO mass in our series 4 were diagnosed as genital tuberculosis only after the histo pathology and ATT was started subsequent to the surgery. Total hysterectomy with bilateral salpingo-oophorectomy is the operation of choice, under proper chemotherapy, both prior to and after the surgery [24][25][26].

5. Conclusion

Genitourinary tuberculosis has a varied presentation, often silent and without classical genital or generalized symptoms. There is a variety of diagnostic criteria as the tuberculosis bacilli is very difficult to isolate or grow. However since majority of these tests are inconclusive by themselves, a strong clinical suspicion is necessary for correct diagnosis. Antitubercular therapy is the mainstay of treatment. Genito urinary tuberculosis results in sequelae which may require major surgical corrections. Coexisting secondary infections are quite common and may prove to be the unmasking of tuberculosis.

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