Multifocal Tuberculosis

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Abstract
Multifocal Tuberculosis represents the many faces of an age old disease. It is characterized by the presence of large multifocal tuberculous areas in same or different organs. A 50 year old male patient, presented with features suggestive of renal failure, low grade fever and cough with mucoid expectoration. He was found to have pulmonary TB, genitourinary TB and tuberculous lymphadenitis. He was started on antituberculous treatment to which he showed good response.

Introduction
There is no clear definition of multifocal TB in the medical literature. Multifocal systemic TB is even less defined in the medical literature.

Multifocal Tuberculosis represents the many faces of an age old disease. It is characterized by the presence of large multifocal tuberculous areas in same or different organs. Difficulty in establishing a definite diagnosis and consideration of other resembling conditions lead to delay in diagnosing this entity. Multifocal systemic tuberculosis, therefore, poses a diagnostic challenge but it may occur in an immunocompetent host, in whom this entity has a good outcome.

Case Report
A 50 year old male patient was admitted with decreased urine output, nausea, low grade fever and cough with mucoid expectoration of 2 months duration. There was no history of vomiting or dysuria. He had occasional pain in bilateral flanks. He was a chronic smoker and alcoholic. He was not a diabetic or hypertensive. He was diagnosed to have right renal and left PUJ (pelviureteric junction) calculi 2 years back following an episode of hematuria and had undergone bilateral ureteric DJ stenting after which he was lost to follow up. On examination, his vitals were stable. He was anemic and had an enlarged inguinal lymph node about 3x3 cm size, firm and fixed. Respiratory system examination revealed scattered coarse crepitations while other systems were within normal limits.

His routine blood and urine investigations were within the normal range except for the deranged renal parameters (Bld urea: 158 mg/dl, Serum creatinine: 6.8 mg/dl) and he tested negative for HIV. He was taken up for peritoneal dialysis. Meanwhile, urine smear for AFB (Acid fast bacilli) came positive. Hence urine samples were sent for culture for mycobacteria and they also came positive about 6 weeks later. Ultrasonography of the Abdomen revealed renomegaly with hydronephrosis on the left with DJ stent in situ on both sides, which was confirmed by CT KUB (Figures 2 and 3). Contrast studies were deferred as the patient was in renal failure.

In order to search for a pulmonary focus of tuberculosis, sputum examination was done but both the smears for sputum AFB were negative. Chest X-ray showed heterogenous opacities in bilateral lung fields. CT Chest (Figure 1) showed miliary nodules, parenchymal infiltrates and cavitation suggestive of active tuberculosis. Meanwhile, Fine Needle Aspiration Cytology of the inguinal lymph node showed caseating granulomatous inflammation suggestive of tuberculous lymphadenitis.

So the final diagnosis was – “Genitourinary Tuberculosis with Smear Negative Pulmonary Tuberculosis and Tuberculous Lymphadenitis”

The patient was started on RNTCP

Table 1: Radiological investigations

<table>
<thead>
<tr>
<th>Investigation</th>
<th>Report</th>
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<tbody>
<tr>
<td>USG abdomen</td>
<td>Left kidney bulky with dilated collecting system, bilateral increased cortical echoes, bilateral ureteric stent in situ.</td>
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<tr>
<td>CT chest</td>
<td>Bilateral upper lobe parenchymal infiltrates with cavitation seen, bilateral military nodules present. Impression: bilateral active tuberculosis</td>
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<tr>
<td>CT KUB</td>
<td>Left renomegaly with hydronephrosis, parenchymal swelling and DJ stent in situ; smaller right kidney with DJ stent in situ.</td>
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Fig. 1: CT chest

Fig. 2: CT KUB showing DJ stent in situ

Fig. 3: CT KUB- showing renomegaly. Arrow shows area of calcification

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category I Anti Tuberculous Treatment without Ethambutol and dose reduction of pyrazinamide to 750 mg. Patient showed good response to treatment and was planned for stent removal a week later.

Discussion

Tuberculosis (TB) continues to be a major health problem, a global emergency being declared by the World Health Organization (WHO). It is estimated that 7–8 million new TB cases are diagnosed every year.2

Multifocal TB is characterized by the presence of large multifocal tuberculous areas in the same or different organs. On the other hand, disseminated hematogenous TB is characterized by the presence of large numbers of tubercle bacilli throughout body sites, resulting in large numbers of tiny tubercular lesions (1–3 mm in diameter). This entity is usually referred to as miliary TB and has a variable clinical presentation.

There is no clear definition of multifocal TB in the medical literature. Three types of multifocal TB can be differentiated based on the organs or sites involved: multifocal skeletal (osteoarticular) TB, multifocal intestinal TB and multifocal systemic TB.3

Multifocal skeletal TB is defined as osteoarticular lesions that occur simultaneously in two or more locations, with or without pulmonary involvement. It is uncomom, with a reported incidence of 7–10%,4 and is usually associated with disseminated disease.

Multifocal intestinal TB is less defined and may refer to multiple liver lesions in the presence of miliary TB.

Multifocal systemic TB may merely be referred to as multifocal TB. The term multifocal systemic disease is preferable, because the entity is characterized by the presence of two or more lesions in extra-pulmonary sites, with or without pulmonary involvement. Brain lesions are not major features of multifocal systemic TB and have been rarely described.

Genitourinary tuberculosis is the second most common form of extrapulmonary tuberculosis after lymph node involvement. It can involve any part of the genitourinary system. The kidney is usually the primary organ infected in the genitourinary system and renal involvement of tuberculosis often does not present with classic symptoms of fever, weight loss or night sweats. In patients with a diagnosis of genitourinary tuberculosis, only 10% show signs of active pulmonary tuberculosis. Direct infection of the kidney and lower urinary tract, and secondary amyloidosis are major forms of well-documented renal involvement.

A past history of tuberculosis and a positive tuberculin skin test with the symptoms and urinary findings may be helpful in the diagnosis of genitourinary tuberculosis. Direct urine smears are usually negative (positive only in 30%) and are also observer-dependent. The urine is classically sterile by routine culture. Urine culture for tuberculosis is the gold standard for establishing the diagnosis, and this requires 6–8 weeks. However, bacilli are shed into the urine intermittently, so only 30–40% of single specimens are positive in patients with active disease.6

However, in recent years, an increasing number of data have reported that, independent of drug therapy, tuberculosis itself can cause glomerular and tubulointerstitial lesions, and patients may present with either acute or chronic renal failure with proteinuria. The most frequent renal biopsy finding in patients with renal involvement is chronic tubulointerstitial nephritis. Tuberculosis should be considered as a possible origin of both acute and chronic renal failure, especially in countries where the incidence of tuberculosis is high.

Treatment of multifocal TB is same as pulmonary TB. However, a prolonged treatment regimen of 9–12 months is recommended for central nervous system involvement.3 The addition of corticosteroids is strongly recommended for pericarditis and meningeal TB.8 The treatment is usually associated with a good outcome; however, the overall mortality rate may reach 33%, especially in immunocompromised patients with multifocal TB.3

Conclusion

TB may cleverly mimic many diseases and affect multiple organ systems and sites. Thus a high level of suspicion for TB should be maintained in patients with multiple sites of involvement, especially in countries where TB is endemic.

References