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CASE REPORT

Miliary Tuberculosis Mimicking Multiple Myeloma: A Rare Case Report

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ABSTRACT

Miliary tuberculosis or disseminated tuberculosis is one of India's most typical forms of tuberculosis. It can have varied presentations, from classical pulmonary disease to affection of extra-pulmonary sites, the most common being the vertebral column. With a wide array of clinical manifestations, differentiating disseminated tuberculosis from common malignancies is no less than a herculean task for a clinician. Keeping a high index of clinical suspicion and detailed work up in the right direction can save the clinician and the patient from an exhaustive ordeal of futile investigations. Here, we present a rare case of miliary tuberculosis masquerading as a common malignancy of the elderly, re-emphasizing the need for a systematic approach to such confusing presentations. *J Microbiol Infect Dis 2022; 12(2):74-77.*

Keywords: *miliary tuberculosis, multiple myeloma, cryptic tuberculosis, CRAB*

INTRODUCTION

In 2020, 1.5 million people died of tuberculosis (TB) worldwide, and it was the second most common infectious killer, preceded only by COVID 19. India is one of the eight countries contributing to two-thirds of the global burden of the disease [1]. Miliary tuberculosis (MTB) is a form of disseminated tuberculosis caused by the spread of Mycobacterium tuberculosis bacilli by the lympho-hematogenous route that can virtually involve any body organ system [2]. The disease imposes a significant burden on the healthcare system in India. The manifestations of the disease, being non-specific, can easily be confused with infections, immunological disorders, and even malignancies. The most well-perfused organs are commonly affected- the spleen, liver, lungs, bone marrow, kidney, and adrenals [3]. Clinical presentation with non-specific constitutional symptoms is known; however, many adults present with apyrexial manifestations, which might leave the clinician searching for a tumor, earning the name 'cryptic tuberculosis' for the disease [4].

We present one such case of an elderly male who, in the initial workup, seemed to be a typical case of multiple myeloma (MM) but finally turned out to be MTB.

CASE REPORT

An 81-year-old male patient presented to the medicine outpatient department complaining of generalized body weakness, loss of appetite, and intermittent low-grade fever for seven months. He even complained of loosening clothes, though no documented weight loss was reported. There was no history of cough, hemoptysis, shortness of breath, abdominal pain, abdominal distention, altered bowel and bladder habits, night sweats, dysphagia, bleeding from any site, change in voice, or any palpable lumps on the body. There was no altered mental status, yellowish discoloration of the eyes, or skin lesions on the body. The patient had no co-morbidities or addictions, family history of TB, or any contact with a TB patient in the past two years that the patient could recall.

At presentation, he had stable vitals with a pulse rate of 82 beats per minute, blood pressure of 128/78 mm of mercury, respiratory

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rate of 18 breaths per minute, and an oral temperature of 99 0F. His body mass index (BMI) was 22 kg/m^2.

Baseline investigations showed microcytic hypochromic anemia with hemoglobin of 8.5 gm%, total leucocyte count of 6.11 x 109/L, and platelet count of 0.5 million/mm3. Serum electrolytes, bilirubin, transaminases, and alkaline phosphatase were within normal limits. He had a total protein level of 7.8 g/dL and an albumin level of 2.6 g/dL, indicative of hypoalbuminemia with reversal of albumin/globulin ratio (1:2). Renal function tests were deranged with hypercalcemia and hyperphosphatemia (Urea: 97 mg/dL, Creatinine: 4.9 mg/dl, S. calcium: 14.8 mg/dL, S. phosphorus: 7.0 mg/dL). There was an elevation of inflammatory markers with C-reactive protein of 126 mg/L and erythrocyte sedimentation rate of 44 mm/1st hour. Tuberculin skin test was negative. Further investigations revealed normal serum ferritin (147 ng/mL), 25-hydroxy vitamin D (57.86 ng/ml), 24-hour urine calcium/creatinine ratio (0.19) and low parathyroid hormone levels (1.9 pg/mL). His urine routine examination was unremarkable.

Blood and urine cultures were sterile. Serology for brucella came to be negative. Considering his age and clinical profile of hypercalcemia, deranged renal functions, and anemia (fulfilling 'CRA' of CRAB=Calcium, Renal failure, Anemia, Bone lesions) possibility of Multiple Myeloma or another underlying malignancy was kept. Serum prostate-specific antigen levels were normal. Tests for Hepatitis B, C, and Human Immunodeficiency Virus (HIV) were negative. The skeletal survey did not show any lytic lesions. (Figure 1) There was no M spike on serum electrophoresis. He underwent a chest roentgenogram which showed bilateral minute non-specific infiltrates. To characterize better the lung findings, a high-resolution computed tomography (HRCT) was ordered, which showed miliary nodules in the bilateral lungs with fibrotic strands and centri-acinar emphysematous changes with calcified mediastinal lymph nodes due to old healed granulomatous lesions. (Figure 2). The fundus examination was regular. The patient was managed with intravenous fluids and was started on antitubercular treatment (ATT), following which his renal function tests and hypercalcemia showed improvement (Table 1). He is currently being followed up on an outpatient basis and is doing well with complete resolution of initial complaints and normalizing deranged biochemical parameters.

DISCUSSION

TB is a significant public health problem and has been an important cause of morbidity and mortality since the pre-antibiotic era. With the advent of vaccination, effective anti-tubercular treatment (ATT), and newer national programs launched to curb this menace, the disease's severity and incidence are decreasing. MTB, also called disseminated, hematogenous, or generalized TB, is responsible for 1-2% of all forms. While it was a disease in infants and children, recent trends have shown the shift to adults and elderly patients [2]. The disease presentations can vary widely, often delaying the diagnosis, sometimes until death [5-10].

Our patient, an elderly male, presented with fever and constitutional symptoms. We ruled out infectious causes (retroviral, hepatitis, and brucella serologies were negative, blood and urine cultures were sterile, and chest X-Ray was normal). Investigations pointed towards the diagnosis of MM. However, HRCT allowed us to reach a conclusive diagnosis of MTB. This case highlighted the overlapping clinical features of MM and disseminated TB, laying importance on systematically diagnosing and differentiating the two entities. Since the treatment modalities for the two diseases are different and can have life-saving outcomes, the clinicians need to have a high index of suspicion to diagnose this benign condition at the earliest and institute ATT to have a favorable outcome.

Table 1. Serial Analysis of Renal function, Serum calcium, and phosphorus.

Investigation	Day 2	Day 3	Day 5	Day 6	Day 8
Urea (mg/dL)	122	135	148	130	102
Creatinine (mg/dL)	4.0	3.3	2.6	2.1	1.7
Calcium (mg/dL)	13.2	13.0	11.0	10.9	10.3
Phosphorus (mg/dL)	5.3	4.0	3.1	2.6	2.5

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Figure 1. Roentgenogram of skull and pelvis showing no lytic lesion.

Figure 2. HRCT Chest showing miliary nodules in the bilateral lungs with fibrotic strands and centri-acinar emphysematous changes with calcified mediastinal lymph nodes due to old healed granulomatous lesions.

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