
INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN BIOLOGY AND MEDICINE

ISSN: 2455-944X

www.darshanpublishers.comVolume 3, Issue 7 - 2018

Case Report

DOI: <http://dx.doi.org/10.22192/ijcrbm.2018.03.07.003>

Unusual presentation of Primary Multi Drug Resistant Tuberculosis in immunocompetent patient: Rapid radiological deterioration - A case report

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Abstract

Tuberculosis remains a serious worldwide health problem associated with high morbidity and mortality. Multi-drug resistant tuberculosis is a serious global threat and the extent of the problem is generally underestimated. Any type of clinico radiological presentations can occur in Tuberculosis (TB) . However, these presentations may be atypical in immunocompromised patients. Rarely unusual and uncommon findings may be observed radiologically in immunocompetent patients of tuberculosis indicating towards a rare diagnosis . Herein we present a rare case in which patient presented with rapid deterioration radiologically within a short span of time in primary Multi Drug Resistant immunocompetent patient.

Keywords: Primary resistance , tuberculosis, immunocompetent

Introduction

Tuberculosis (TB) is a disease that has been known since antiquity. It remains one of the leading causes of morbidity and mortality worldwide. Its management has become more complex because of increased resistance to commonly- used anti-TB agents.

Drug resistance has been described as either primary or acquired. Primary drug resistance refers to resistance of strains segregated from patients who have not formerly received TB treatment. Acquired drug resistance expressed TB isolated from patients

who presently are getting or until that time have received anti-TB drug treatment for at least 1 month. Primary drug resistance is understood to be caused by the spread of drug-resistant strain. [1] As per the Global TB report 2017 the estimated incidence of TB in India was approximately 28,00,000 accounting for about a quarter of the world's TB cases.[2] Globally in 2016, there were an estimated 4.1% of new cases and 19% of previously treated cases with MDR/RR-TB. In 2016, an estimated 600000 new cases of MDR/RR-TB emerged globally. MDR/RR-TB caused 240000 deaths in 2016. Most cases and deaths occurred in Asia. In India Estimated % of TB cases with MDR/RR-TB 2.8% (2–3.5) in new cases and 12% (10–13) in previous cases [3]

Case Report

A 32 year old female presented to us with complaints of expectorating cough and fever since 1 month. She had no history of chronic disease, diabetes. She was a never smoker and denied use of alcohol or any drugs. She had no contact with a person with TB infection. There is no history of any previous treatment of tuberculosis in the patient. Her sputum was sent for investigation and acid fast bacilli (AFB) were seen in Z-N stain and it came out to be rifampicin resistance on Cartridge Based Nucleic Acid Amplification Test.

Thus she was diagnosed as a case of primary rifampicin-resistant pulmonary tuberculosis.

On physical examination, Her temperature was 38.7°C blood pressure 110/70 mmHg, pulse 100 beats per minute, respiratory rate 30 per minute and transcutaneous oxygen saturation 96% while breathing room air. Heart auscultation was normal and on pulmonary auscultation bilateral coarse crepts were present. All other physical examination was unremarkable.

Blood investigations revealed haemoglobin of 10.1 g/dl, total leucocyte count 8900/ μ l with differential counts (neutrophil 87%, lymphocyte 13% and eosinophils 0%) and ESR 45 mm and RBS of 86 mg/dl. She had normal liver and renal function tests. Serological evidence for HIV infection was negative.

Her chest radiography was done and it showed multiple heterogeneous opacities on both the sides with multiple cavities on the right side along with fibrosis.[figure 2]. On looking her previous records her xray was completely normal [figure 1] and rapid deterioration occurred within a span of one and a half month. Thus a diagnosis of primary rifampicin resistant pulmonary TB was made and the patient was started on DOTS cat IV under Revised National TB Control Programme.

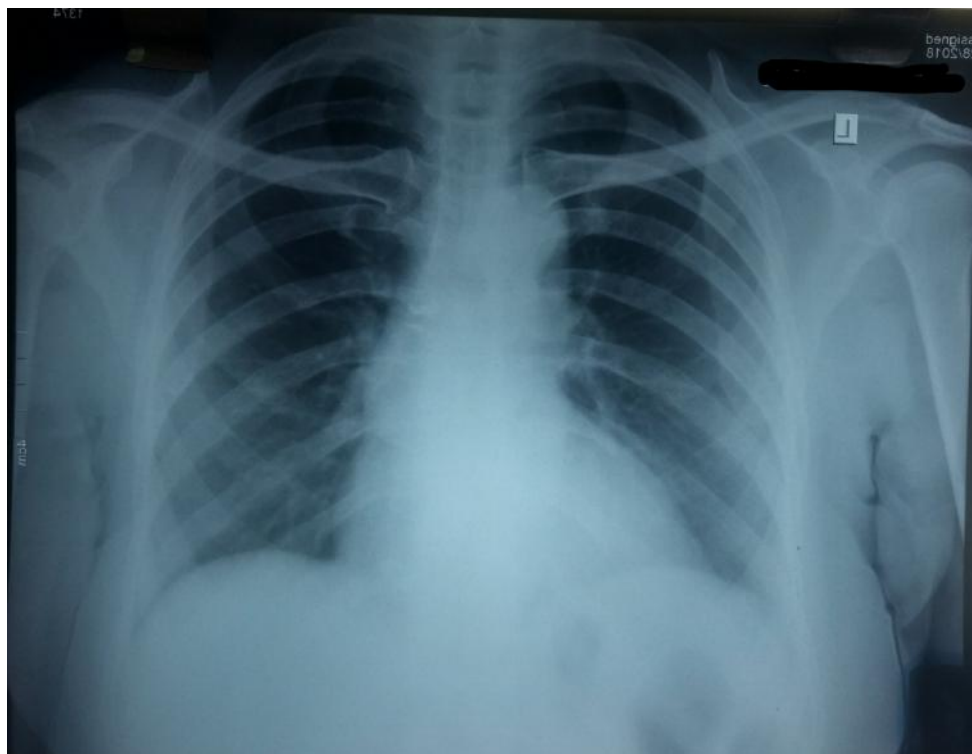


Figure 1 - Chest X ray – within normal limits



Figure 2 – chest xray showing multiple heterogenous opacities on both the sides with multiple cavities on the right side along with mediastinal pull and fibrosis

Discussion

Tuberculosis (TB) is an infectious disease caused by airborne transmission by the acid fast bacillus *Mycobacterium tuberculosis* and is an important cause of death worldwide. Multidrug-resistant (MDR) TB is defined as a strain resistant to at least Isoniazid and Rifampin [4]. It has emerged as a global threat. Any type of clinico radiological presentations can occur in Tuberculosis (TB).

Tubercle bacilli are continually undergoing spontaneous mutations that create resistance to individual anti-TB drugs resulting in the development of drug resistant tuberculosis. Imaging has a big role in tuberculosis (TB) diagnosis and chest X-ray is preferable because it is available in primary health care and can point out the location, area, and morphology of lesions, such as cavity, consolidation, pleural effusions, and fibrosis which can further help to differentiate drug resistant and sensitive TB although not specific.

According to Zahirifard S *et al*, the chest imaging of pulmonary MDR-TB reflects more frequently the extensive and destructive pattern showing the presence of multiple cavities, especially in both lungs, nodular

and infiltrative lesions with pleural effusion as compared to those of drug sensitive TB. [5]

Most patients with primary drug resistance show a primary form of TB with abnormalities such as noncavitary consolidation, pleural effusion and lymphadenopathy. Cavitary disease are considered more common in patients who acquired MDR TB secondary to noncompliance with therapy. Cavitation are less frequent in patients with MDR TB who were HIV positive and excessively immunocompromised as compared to HIV-negative and immunocompetent patients.[6]

Knowledge about these radiological findings are very important considering the increasing number of MDR-TB cases, either new or old ones because chest X-ray evaluates the response of the therapy so that early diagnosis of MDR-TB can be achieved.[7]

Hence a possibility of primary MDR TB should be kept in those cases where rapid radiological deterioration is there especially in immunocompetent patients due to drug-resistant strains of *Mycobacterium tuberculosis*.

Conclusion

As lethal form of TB needs urgent detection and treatment, high index of suspicion should be kept in mind for the possibility of primary MDR TB cases presenting as atypical, fulminantly progressing radiological deterioration in immunocompetent patients. Although very rare, primary MDR TB can be considered in immunocompetent. We thereby emphasize that early recognition and initiation of treatment are associated with a significant role to get improvement in outcomes.

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How to cite this article:

Srijna Rana, Rajwinder Kaur, Gurpreet Singh, Nirmal Chand Kajal, Nadia, N.S.Neki. (2018). Unusual presentation of Primary Multi Drug Resistant Tuberculosis in immunocompetent patient: Rapid radiological deterioration - A case report. *Int. J. Curr. Res. Biol. Med.* 3(7): 16-19.

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