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MDR TB-Cold Abscess in Chest Wall —Secondary to Mediastinal and Pulmonary Tuberculosis in a HIV Patient

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Abstract: Tuberculosis is a major public health problem in the world. It has further been complicated by the spread of the Human Immunodeficiency virus (HIV), as well as by the increased drug resistance. We report here a patient who was previously treated for pulmonary tuberculosis and later on developed tubercular mediastinal lymphadenopathy and a large cold abscess over chest wall. He did not respond to the first line anti tubercular drugs. Later on, drug susceptibility test was done and the diagnosis was found to be Multi Drug Resistant Tuberculosis (MDR-TB). He was started on the 2nd line of anti tubercular drugs since 6 months and is doing well.
Keywords: Multidrug-resistant tuberculosis (MDR-TB),**C**old abscess, Human Immunodeficiency virus (HIV).

INTRODUCTION

Tuberculosis (TB) remains a major world health problem [1-3]. It is expected that nine million people will become infected each year. TB also contributes to two million deaths per year [3]. The emergence of multidrug-resistant tuberculosis (MDR-TB), particularly in the 1990s, has become an important health problem and that has threatened TB control worldwide [4, 5]. According to WHO, *M. tuberculosis* strain should be resistant to at least Rifampicin (R) and Isoniazid (H) in order to be considered as MDR-TB [4].In human immunodeficiency virus (HIV) positive patients, extra-pulmonary tuberculosis (EPTB) accounts for more than 50 per cent of all cases of tuberculosis. Diagnosis of EPTB involves demonstration of *M. tuberculosis* in tissue specimens and body fluids by microbiological and histopathological methods. Given the obscure location of the disease, reluctance of the patients to undergo invasive procedures for procuring body fluids and tissue specimens for examination and poor yield of the conventional histopathological and microbiological diagnostic methods, definitive diagnosis of EPTB is difficult [6]. We report the rare occurrence of MDR-TB involving the chest wall abscess.

CASE REPORT

A 35 year old male patient who was previously diagnosed as HIV, initially presented with symptoms suggestive of pulmonary tuberculosis. Chest X ray showed left upper lobe infiltrations. Sputum for AFB was positive. He was started on Rifampicin (R), Isoniazid (H), Pyrazinamide (Z), Ethambutol (E) for pulmonary tuberculosis. After 6 months of completion of ATT there was no relief in symptoms and left suprascapularlymphnodes were enlarged, firm with matting. Chest X ray showed mediastinal widening in addition to persistent pulmonary infiltrates (Fig. 1). CECT chest was done which showed multiple enlarged mediastinallymphnodes with peripheral rim enhancement suggestive of tuberculouslymphnodes (Fig. 2). Fine-needle aspiration cytology (FNAC) done from cervical lymphnodes came as granuloma of tubercular etiology. Anti-tuberculosis treatment with Rifampicin (R), Isoniazid (H), Pyrazinamide (Z), Ethambutol (E) and Streptomycin (S), was started.

While the patient was in 5th month of CAT II ATT, he presented with complaints of large swelling over the sternum. On general physical examination, swelling over the sternum was measuring 8 X 8 cm size, skin over the swelling was shiny, and fluctuation test was positive. Thin pus was obtained on needle aspiration done from the chest wall abscess. Aspirated pus was sent forZiehl-neelsen staining and culture and drug sensitivity testing for tuberculosis. Ziehl-neelsen staining was positive (2+) for acid fast bacilli. As the patient has already received CAT I and was on CAT II treatment (5th month), MDR tuberculosis was suspected. On L J medium, culture growth was seen after 3 weeks. The drug susceptibility testing (DST) was done for the growth obtained from the culture. The DST result indicated that the organism which was isolated was

Mycobacterium tuberculosis which was resistant to isoniazid (INH) and rifampicin.

Multi drug resistance tuberculosis (MDR–TB) was confirmed. CAT IV regimen containing Pyrazinamide (Z), Ethambutol (E), Ethionamide (Eth), Cycloserine (Cyc), Ofloxacin (Ofl) and Kanamycin (K) was started according to body weight. Patient responded very well to the treatment with complete reduction in size of chest wall abscess, parenchymal lesions, mediastinal lymphadenopathy.

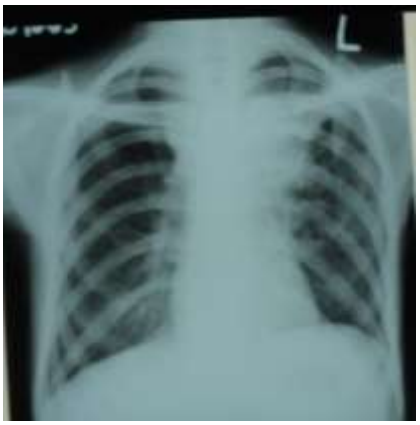

Fig.1: Chest X ray showing mediastinal widening and left upper lobe infiltrates

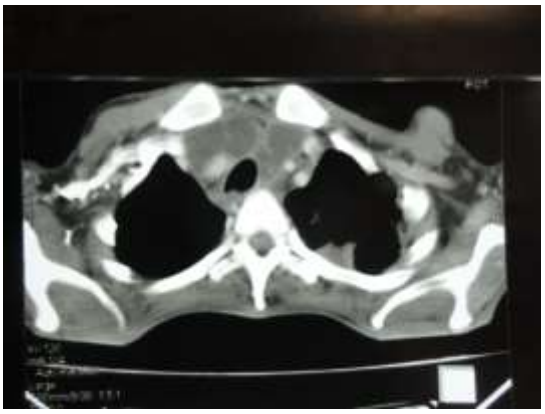

Fig.2: CT scan chest showing multiple enlarged lymph nodes in anterior mediastinum

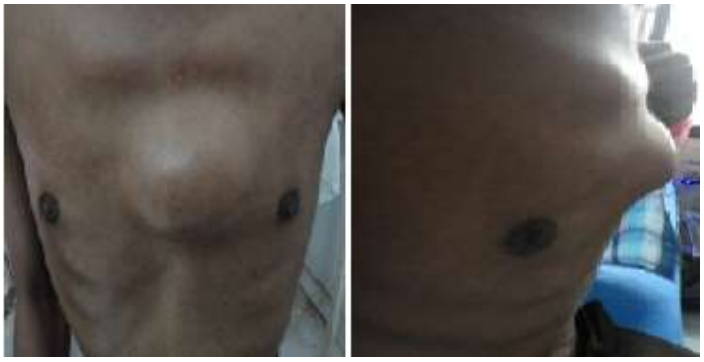

Fig. 3: Cold abscess

Fig. 4: Thin straw colour fluid being aspirated from cold abscess

DISCUSSION

Multidrug-resistant *Mycobacterium tuberculosis* is an emerging and alarming health problem. The actual treatment regimens for MDR-TB are complex, expensive, long term, associated with high rates of side effects and poor outcome, and high morbidity and mortality [2, 4, 5]. In 2010, it was estimated that 8.8 million incident TB cases occurred in the world. Of the 12 million prevalent TB cases, around 650,000 were estimated to be multidrug-resistant (MDR) [7]. Over 60% of newly diagnosed MDR-TB in 2010 occurred in China, India, the Russian Federation and South Africa alone [8]. With total drug resistant (TDR) TB reported in India, the situation is now grim [9].

Pulmonary TB is the common mode of presentation of MDR-TB. Here we are presenting a rare case of multiple primary intrathoracic and extraperitoneal soft tissue tuberculous abscesses and mediastinal lymph node tuberculosis with pulmonary involvement. A 35 year-old, HIV seropositive male patient presented with a coldabscess over chest wall following left upper lobe tuberculosis and bilateral cervical and mediastinal lymphadenopathy. Culture of pusaspirated from the cold abscess in the chest wall grew *M. tuberculosis* resistant to Rifampicin and Isoniazid. In a resource-limited setting, he was treated with Ethambutol (E), Pyrazinamide (Z), Ethionamide (Eth), Cycloserine (Cyc), Ofloxacin (Ofl) and Kanamycin.

The major cause for the problem is failure to adopt effective strategies for the control of the disease. Because an inadequate or poorly administered treatment regimen allows a drug-resistant strain to become a dominant strain [10]. Poor adherence as seen with our case, that would increase resistance, is an important factor in this genesis. In addition to these factors, intolerance, side effects, poverty, social barriers, and

poor medical management contribute as well to development of MDR-TB [4, 11].

Extraspinal musculoskeletal TB is among the least common manifestations of TB [12]. MDR-TB is very rare in extrapulmonary TB [13]. Our patient was HIV-positive presenting with pulmonary tuberculosis accompanied by mediastinal LNTB and chest wall cold abscess. Tubercular cold abscesses secondary to neighbouring bone involvement are a well-known clinical manifestation of extra-pulmonary tuberculosis. Primary soft tissue tuberculous abscesses with pulmonary involvement in immuno-compromised patients are common [14]. But MDR tuberculosis in cold abscess is very rare.

Human Immunodeficiency Virus (HIV) increases the risk of reactivating latent Mycobacterium tuberculosis (MTB) and also increases the risk of rapid MTB progression [15]. Presentation of tuberculosis in the HIV-infected patient is variable. Radiographic findings are often atypical, may not demonstrate classic upper lobe cavitary lesions. In some series, the most common chest X-ray finding is hilar fullness without infiltrate [16].

MTB infection may lead to significant morbidity and mortality, yet it is a preventable and treatable disease. MDR TB is defined as MTB that is resistant to at least isoniazid and rifampin, often more challenging to treat, and more likely to be fatal. Treatment outcomes vary among patients with MDR-TB. Response depends on the extent of pulmonary involvement, number of bactericidal drugs used, availability of community resources and patient's ability to comply and tolerate therapy. It is reported that success rates have varied between 60% and 95% in selected groups [16].

CONCLUSION

This case highlights the potential problem of MDRTB. The rapid identification of drug susceptibility is virtually important in endemic countries where MDRTB and XDRTB can exist [17] and the need for a high index of suspicion for MDR TB of extra-pulmonary tuberculosis in patients from endemic areas.

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