



## CASE REPORT

### CONCOMITTANT ACTIVE PULMONARY TUBERCULOSIS AND LEPROMATOUS LEPROSY WITH TYPE-II LEPRO REACTION IN SAME PATIENT: 2 RARE CASE REPORTS

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#### Abstract

Leprosy and tuberculosis are two common diseases in India. Tuberculosis is more common in mahabubnagar dist, Andhrapradesh. The concomitant occurrence of both tuberculosis and leprosy in a single individual are not an uncommon clinical condition but is being reported infrequently in literature. We report a rare case of active pulmonary tuberculosis with active leprosy in a type 2 diabetic patient and another case in non immunocompromised patient, both are proved to be Drug resistant Tuberculosis

**Keywords:** Tuberculosis, Leprosy, pneumothorax, haemoptysis, coinfection

#### INTRODUCTION

Leprosy is a chronic granulomatous disease principally affecting the skin and peripheral nervous system, caused by *Mycobacterium leprae*. The concomitant occurrence of both tuberculosis and leprosy in a single individual are not an uncommon clinical condition but is being reported infrequently in literature [1]. The infrequent occurrence of both tuberculosis and leprosy is based on the transmission dynamics of both infections.[2,3] The higher reproductive rate of *Tubercle bacilli* as compared to *Lepra bacilli* and degree of cross immunity within an individual do not allow both infections to occur simultaneously but there have been sporadic reports of co-existence of tuberculosis and leprosy in the same patients. The prevalence of tuberculosis is estimated to be 4.0 and 16.0 per thousand for bacteriologically and radiologically active tuberculosis cases respectively, while the national prevalence rate of leprosy in India is 0.88/10,000[4].

We report a case of pulmonary tuberculosis with active lepromatous leprosy with type 2 lepra reaction in a single individual type 2 diabetes and another case in non immunocompromised patient

**CASE REPORT- 1**

A 45 yr old male, agricultural laborer presented in the casualty with sudden onset of right sided pleuritic chest pain, shortness of breath grade3 since 1 hr. H/O cough with sputum, purulent, greenish color, foul smelling, low grade fever more during evening hrs, loss of appetite, loss of weight since 2 months. Patient was various antibiotics since 2 months, not improved symptomatically. No h/o similar complaints in the past. Past history unremarkable. Diagnosed as diabetic 10 days back, on oral hypoglycemic drugs. Not a smoker & alcoholic. Clinical examination revealed right sided pneumothorax, with Spo2 55% @ room air, 90% with 10 lts of O<sub>2</sub>, respiratory rate 38/min and blood pressure was 90/60mm of Hg. Before admission Chest X-ray suggestive of left upper, mid zone infiltrations with right mid zone cavity [ Fig.1]. After admission Chest X-ray suggestive of right sided tension pneumothorax with shift of mediastinum to left side [ Fig.1a]. Immediately closed tube thoracostomy was done. Routine investigations Fasting & post prandial blood sugars were high with HbA1c of 13.4. The next day chest X-ray partially expanded lung, with a cavity, I.C.D insitu [ Fig.1b]. Noted fluid in the I.C.D, which was sent for investigations. Protein 4.5gr/dl, sugar 90 mg/dl, Adenosine deaminase 106 U/L, and 2+ positive for A.F.B. Sputum for A.F.B under RNTCP is 3+ve (2 samples). Started A.T.T under Cat 1 [ 2(H,R,Z,E)3 ] and on inj.H.Mixtard.

After 15 days of A.T.T pt not improved symptomatically, air leak persisting but drain decreased. Observed multiple, erythematous, transient, painful nodules all over the body [ Fig.2]. Advised slit skin smear after discussing with Dermatologist, which was Positive for *M. Leprae* bacilli (5% H<sub>2</sub>SO<sub>4</sub>) [ Fig.3].

And there is thenar muscle wasting, loss of eye brows..etc. started on Tab. Dapsone 100mg Once a day, Tab. Clofazamine 100mg thrice a day, Tab. Prednisolone 10 mg twice a day. After 5 days of treatment all the skin lesions subsided and patient improved symptomatically. And steroids tapered.



Fig.1 revealed left upper, mid zone infiltrations with right mid zone cavity



Fig.1 a. revealed right hypertranlucency,loss of lung markings,collapsed lung border with shift of mediastinum to left side s/o massive pneumothorax.

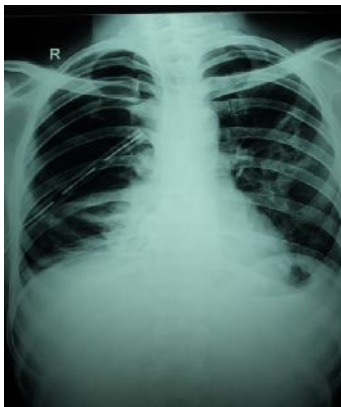


Fig 1 b. revealed ICD insitu,partially expanded lung with cavity.



Fig.2 multiple erythematous nodules all over the body

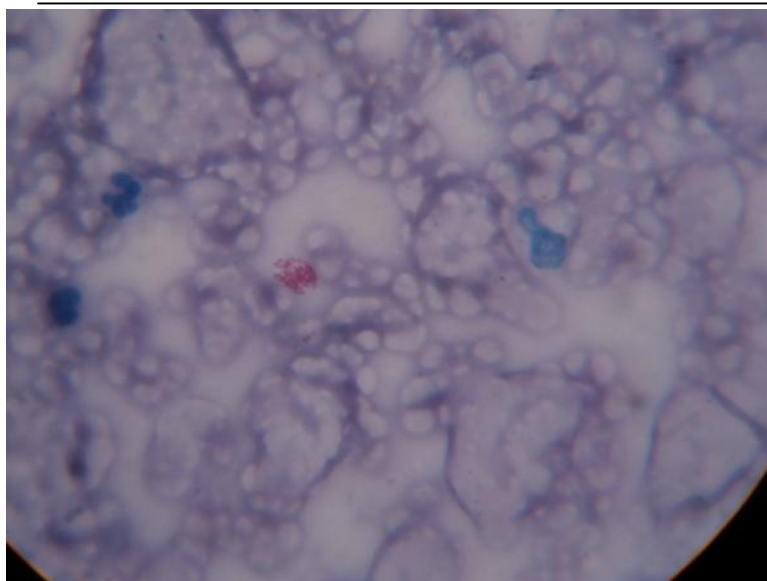


fig. 3- shows A.F.B

Pleural fluid for A.F.B c&s grown M.Tuberculosis bacteria which is resistant to Rifampicin and Isoniazid drugs( sent because of large cavity, pt is daiabetic & proved to be Leprosy).

Patient was started on DOTS plus treatment and On leprosy treatment.

- Pleural fluid for AFB was negative at the end of 5months of treatment.
- AFB culture was sent
- ICD removed after 40days.
- Now on MDR & Leprosy t/t

## **CASE REPORT- 2**

- 40 year old Male patient, came with complaints of, fever since 1 month and skin lesions since 1month, haemoptysis since 15 days . History of loss of weight , loss of appetite was present.
- General examination showed erythematous nodules all over the body. Peripheral nerve thickening was present.
- X ray Chest was not showing any lesions. But Sputum for AFB was positive.



Fig 1. Loss of eye brows



Fig 2 – Thenar muscle wasting



Fig 3 – Left L.L consolidation with Tree in bud appearance



- Slit skin smear and scrapings from nasal mucosa showed AFB positive bacilli to 5% H<sub>2</sub>SO<sub>4</sub>. and nasal mucosa scrapings +ve for AFB bacilli to 20% H<sub>2</sub>SO<sub>4</sub> also.
- Patient was started on ATT and anti leprosy treatment.
- Sputum was sent for AFB culture an sensitivity ( in view of concomitant infection) , proved to be Rifampicin resistant. Patient was started on DOTS plus ( MDR )treatment .

Thus a final diagnosis of Sputum positive pulmonary tuberculosis (D.R TB) with concomitant Lepromatous leprosy with type-II lepra reaction was made in both the cases

## DISCUSSION

Leprosy and tuberculosis continue to be prevalent in our country. Prevalence of tuberculosis is estimated to be 4.0 and 16.0 per thousand for bacteriologically and radiologically active tuberculosis cases respectively, while the national prevalence rate of leprosy in India is 0.88/10,000 [4]. The great attention about leprosy and tuberculosis coinfection was carried out by Chaussinand in 1948, and concluded that the prevalence of leprosy was inversely related with the prevalence of tuberculosis.

The principal means of transmission of both leprosy and tuberculosis is by aerosol spread. The incubation period in leprosy varies from six months to 40 years or longer, while in case of tuberculosis it is only four weeks.

Review of literature suggest that the occurrence of leprosy and tuberculosis coinfection first time reported by Relvich AL *et al.* in 1954 and strongly argued that association of tuberculoid form of leprosy with tuberculosis was uncommon.[5] Gajwani[6] *et al.* 1968 and Gupta[7] *et al.* 1971, reported the association of tuberculoid type of leprosy with tuberculosis. This was further supported by Agnihotri MS *et al.*, in 1974, who documented three cases of tuberculoid leprosy with tuberculosis[8] and Nigam P *et al.*, (1979), who documented two cases of tuberculoid leprosy in association with tuberculosis.[9] On the other hand, most of the cases of tuberculosis were associated with lepromatous leprosy followed by borderline lepromatous leprosy.

The duration of gap between the development of leprosy and tuberculosis varied between two months to 10–15 years,[9,10] the study with largest data showed gap duration of about 10-15 years, where duration of tuberculosis in most of the cases was within six months present. Only two cases of tuberculosis were found to occur earlier than leprosy, [8,10] where as one study concluded that tuberculosis can occur during full spectrum of leprosy.[11]. In our case it is both active Pulmonary tuberculosis with Lepromatous Leprosy.

It is well known that tuberculosis infection can develop with certain risk factors likes HIV infection, low socioeconomic status, silicosis, diabetes mellitus, gastrectomy, renal failure, organ transplant; these have been incorporated in the risk stratification in tuberculosis guideline[12]. There are also other purported risk factors such as smoking; rheumatic disorders and use of low dose immunosuppressive agents or glucocorticosteroids but substantive epidemiological data about these risk factors factor tuberculosis are scarce.[13] In case of leprosy, corticosteroids are used primarily in the treatment of type I (reversal) reactions and type II reactions and silent neuropathy. Chandrashekhar *et al.* (2000), reported development of pulmonary tuberculosis after corticosteroid intake in two cases of leprosy.[14] Agarwal *et al.* (2000), reported a case of leprosy and tuberculosis coinfection in a patient of renal transplant recipient and who had taken



prednisolone, azathioprine and cyclosporine for more than nine years[10] case, he received (but in our case it is both active pulmonary tuberculosis and Lepromatous Leprosy, in a recently diagnosed diabetic, never on immunosuppressive drugs, steroids, HIV-N.R, HBsAg-NEG,). In leprosy, majority of the cases reported were pulmonary tuberculosis, while in two cases of extra-pulmonary tuberculosis (tuberculosis of larynx[15] and cutaneous tuberculosis[16]) were reported.

Diagnosis of leprosy was established in majority by slit skin smear but diagnosis by nasal smear and histopathological examination was also reported (as in our Second case). Most common findings on chest radiographs were bilateral infiltrates with cavities[8,9,11,14,17] (as in our present case it is right mid zone cavity-->pneumothorax and in second case it is tree in bud appearance in ct). Sputum smear for AFB was positive in majority of the cases with available data[8,9,10,14,17] (as in our cases case sputum & pleural fluid, in case 2 Nasal smear also positive for AFB).

Available data among the cases of leprosy with tuberculosis had lepra reaction including one of the author, in which one of them had type-II lepra reaction (ENL)[14] while one was type-I reversal reaction[18] (while in present cases it was Type-II lepra reaction). Management of tuberculosis in leprosy coinfection does not change; with the same WHO treatment categorization i.e. Cat-I or Cat-II or DOTS plus (as in our 2 cases)

## CONCLUSION

Though concomitant existence of tuberculosis and leprosy is rare, but whenever they co exist there is high probability of TB bacilli to be Multi Drug Resistant, so it is advisable to send sputum or tissue or Fluid for AFB culture

It is important to screen out the clinical features of tuberculosis in each and every patient of leprosy and vice versa to avoid single drug therapy (Rifampicin), which may contribute to development of acquired drug resistance)

## Footnotes

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**Conflict of Interest:** None declared.

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