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***Case Report***

# SURVIVAL OF PATIENT WITH EXTENSIVELY DRUG RESISTANT TUBERCULOSIS, AYURVEDIC WAY – CASE REPORT

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## ABSTRACT
Extensively drug resistant tuberculosis (XDR-TB) is an emerging health problem that threatens tuberculosis (TB) control worldwide, since suitable treatment for this disease has not yet been found. We herein report a female, thirty six year old case of long standing pulmonary XDR-TB (eleven years) who after five years of regular *Ayurvedic* treatment became disease free and survived. She had extensive bilateral lung damage and had been treated with multiple anti tubercular drugs. The strain of mycobacterium tuberculosis was resistant to R-rifampicin, H- isoniazid, E-ethambutol, Z-pyrazinamide, Cm- capreomycin, Mfx- moxifloxacine, Eto- ethionamide, Am- amikacin, PAS- para amino salicylic acid, T-thiacetazone, Ofx- ofloxacin, S- streptomycin and Clr-clarithromycin. Her culture of sputum for AFB is negative and roentgenogram of the chest showed complete resolution of the fibrocavitary disease in both the lungs. She gained 18 kg weight during treatment. The recovery of the patient from such a fatal disease is excellent. Drug is safe, cost effective and eradicates the disease.

***Keywords:*** *Latent Tuberculosis (LTB), Extensively Drug Resistant TB (XDR-TB), Multi Drug Resistant TB (MDR-TB), Totally Drug Resistant TB (TDR- TB), Acid Fast Bacilli (AFB), Roentgenogram, Samsodhan*

## INTRODUCTION
Tuberculosis (TB) is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS. In 2016 there were an estimated 1.3 million TB deaths among HIV- negative people and an additional 374000 deaths among HIV- positive people. An estimated 10.4 million people fell ill with TB in 2016 (World Health Organization, 2017). Drug resistant tuberculosis poses a major threat to control of TB globally. In 2016, there were 600000 new cases with resistance to rifampicin, of which 490000 had multidrug- resistant TB (MDR-TB). Information from countries with reliable data suggests that 9.5% of MDR-TB cases worldwide have extensively drug resistant TB (XDR-TB). Strains of TB have also been identified in patients for which there are no viable treatment options, called totally drug- resistant TB (TDR-TB) (Velayati *et al.*, 2013). There is an urgent need to develop new anti TB drugs highlighted by the ongoing rise in TB cases worldwide. TB has been recognized well in the science of *Ayurveda*. *Maharishi Charak* (2000 B.C.) identified the disease and called as *Rajyakshma* while *Maharishi Shsruta* (800 B.C.) named it as *Shosa*. Several formulations are reported to have potent anti TB activities (Tripathi, 2010). If evaluate methodically they may generate some curative or supportive remedy for suffers of this disease. We herein report a female, thirty six year old case of long standing pulmonary XDR-TB (eleven years) who have been given regular five year Ayurvedic treatment and survived.

## CASES
A 36 year old female known case of drug resistant pulmonary TB visited to out - patient department (OPD) of the institute in September 2011 presenting the symptoms of high fever, sweating, cough with hemoptysis, breathlessness, malaise, anorexia and weight loss. She had a recent positive report of sputum for acid fast bacilli (AFB). Her chest x ray PA view showed bilateral active koch's lesions with old healed

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diffuse calcified fibrocavitary disease. Blood investigation revealed Hb- 8.5 g%; WBC- 13600/$mm^3$, $P_{68}$ $L_{14}$ $E_8$ $M_{10}$ $B_0$ ESR 120 mm in 1st hour; Blood Glucose (PP) - 160 mg/dl. She was on the treatment of six drug second line anti TB regime since last three months. She was bed ridden and lost her weight 6 kg (42 to 36 kg) within two months. Drugs prescribed to patient were high dose isoniazid ($H^h$), clofazimin (Cfz), streptomycin (S), ethionamide (Eto), pyrazinamide (Z), and moxifloxacin (Mfx). From family history of the patient it was noticed that her uncle (father's real brother) had pulmonary TB in the year 1976. He got treatment from multiple doctors inappropriately missing the doses and died of TB in the year 1989. The entire family of the patient was residing in a single own house and she got infection probably from her uncle in early age with latent tuberculosis (LTB). Active infection occurred to the patient in the year 2000 when she gave the birth of her third child at the age of 26 year. Patient took 9 month regular treatment with rifampicin (R), isonizid (H), ethambutol (E) and Z, but failed to get complete remedy. In 2002 disease recurred, she was recommended levofloxacin (Lfx), Cm, Eto, Z, and thioacetazone (T) and put her on regular treatment of 22 month. But failure of the drug observed once more. During the period of eleven years new attempts were made by the multiple physicians shifting patient from one group to other of the second line anti tubercular treatment but with no response. Drug susceptibility testing (DST) report lying with the patient showed resistance to HREZSCmEtoPASKMfxT and Lfx drugs, putting the case under definition to the XDR-TB / TDR-TB. When patient visited institute, her body was purified prior to the regular treatment. From September 22nd 2011 patient put on regular therapy with *Mahalaxmi Vilas Ras* (AFI Part I), 250 mg per day empty stomach in the morning for five years. The response of the drug was assessed time to time through hematological, biochemical, radiological investigations (Figure 1) and urine analysis. On follow up after five years her smear for AFB was negative. Chest roentgenogram showed complete resolution of the fibrocavitary disease in both the lungs. No active Koch's lesions reported (Figure 2). Patient gained 18 kg of weight during treatment. There is no cough and no respiratory complaint from the patient she is alive with good quality of life. The upper zone of the left lung of the patient is partially collapsed and trachea and mediastinal structures are shifted to left side.

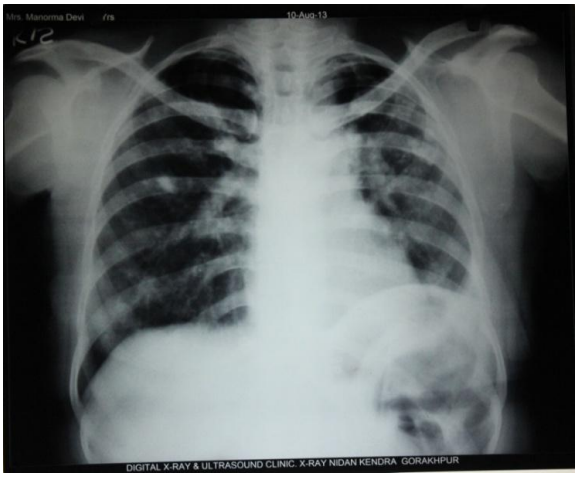


**Figure 1:** Chest roentgenogram showing bilateral regressing/ stable Koch's lesion after two years (midway) *Ayurvedic* treatment.

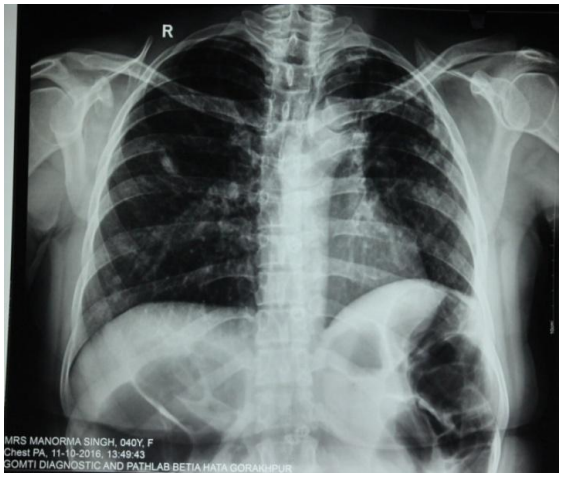


**Figure 2:** Chest roentgenogram showing no active Koch's lesion, left upper zone partially collapsed trachea and mediastinal structures are shifted to left side.

*Purification (Samsodhan)*: Patient having been uncted with *ghrit* of goat and sheep processed with decoction of *laghu panchmool* i.e. root of *Desmodium gangeticum (Shalparni), Uraria picta (Prishniparni), Solanum indicum Linn (Brahti), Solanum surattense Burm f. (Kantakari*), and *Tribulus terrestris (Gokshur)*, for three days. On fourth day in the morning *Piper longum (Pippali)* powder 2g.

recommended with honey for mild emesis and *Terminalia chebula (Haritaki)* powder 6g. administered with a glass of lukewarm water for laxation.

## DISCUSSION

Treatment of TB in *Ayurveda* is based on a set of principles involving nutritional support measures, palliative care and detoxification therapy. Detoxification, in which oleation, mild emesis and laxation included, has been found most effective in the management of this ailment. The main objective behind procedure is to eliminate the factors causing disease from body preserving the immunity of the patient. Oleation is considered the most effective remedy in the treatment of *vata* disease (Singh, 2004). The use of goat and sheep ghrit processed in *laghu panch mool* decoction in patient with TB induces the secretion of enzymes within the alimentary canal. It corrects digestion and improves appetite. The accumulated waste materials/ toxins that obstruct the channels causing disease are expelled from body either by the process of emesis or by the down flow action of purgation (Singh *et al.*, 2015). In fact detoxification is the pre therapy in the actual line of management. It cleanses the channels, improves absorption and ensures smooth conduction of nutritive substances in the body. Palliative treatment given after detoxification (*Samshodhan*) therapy is believed to act more effectively and disease not relapsed once cured. Since patient having poor strength in the body in cases of TB, mild emetics recommended. The powder of *Piper longum* in 2 g. quantity acted as mild emetics. When given to the patient empty stomach with honey desired response of one or two vomit obtained within half an hour. *Terminalia chebula* responded as soft bowel evacuator when given to the patient in 6 g. quantity with lukewarm water empty stomach in the morning ensured 2-3 times clear motion. The role of detoxification therapy has been studied in various diseases. Studies showed that these procedures increased body weight, improves serum immunoglobulin, increased hemoglobin levels and normalized liver functions (Sahu and Mishra, 2004).

### *Conclusion*

The results of treatment indicate that *Mahalaxmi Vilas Ras* is very much useful drug for the treatment of TB. Drug is as effective as R H E &Z, available in conventional medicine for treatment of TB. It is safe, cost effective and eradicates the disease. Though treatment is given to only one patient but recovery of patient who survived from the disease is excellent. There is a need to conduct study on this topic further.

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