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## Ayurvedic Intervention in *Rajyakshama*/ Tuberculosis - A Case Report

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### ABSTRACT

Pulmonary tuberculosis is caused by the *Mycobacterium tuberculosis*. Tuberculosis (TB) is contagious which means that bacteria easily spreads from an infected person to someone else. Symptoms of Pulmonary Tuberculosis may include cough that lasts 3 weeks or longer accompanied with haemoptysis, appetite and weight loss, weakness/ fatigue, fever and night sweats. In *Ayurveda* this clinical condition can be compared with *Rajyakshama*. Treatment of Tuberculosis requires at least 6 months. The drugs which used in treatment of Tuberculosis are less potent and more toxic. These drugs have less bio availability as they are thrown out of the body by bio transformation. Ayurvedic texts have mentioned Pulmonary Tuberculosis and its cure using natural plant based products. Being natural products they have negligible side effects and have greater bio activity as well as bio availability. In this case study, a male patient who was diagnosed for Pulmonary Tuberculosis and was administered Anti Tubercular Drugs (ATDs), was also advised a combination of herbo-mineral drugs (*Bol Parpati*, *Kaharawa Pishti*, *Pippali Churna*, *Vasavaleha*, *Draksharishta*, *Dashamoola Kashaya*, *Bhrangarajasava*, *Vidaryadi Ghrita*, *Vidaryadi Kashaya*, *Ajaashwagandhadi Lehya*) for a period of 4 month. A significant clinical and radiological improvement was observed after 4 month of medication.

### KEYWORDS

*Ayurvedic formulation, Bio availability, Rajyakshama, Tuberculosis*



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## INTRODUCTION

Tuberculosis (TB) is one of the oldest diseases which is a major cause of death worldwide and most often affects the lungs, although other organs are involved in up to one third of cases<sup>1</sup>. Pulmonary TB is a communicable disease<sup>2</sup>. India has the highest TB burden among the 22 high TB burden countries. Globally, 2-3 billion individuals are infected with TB. Once infected, in about 5-15% of cases active disease develops during their life time<sup>3</sup>. Immune compromise diseases, malnutrition, tobacco smoke, indoor air pollution, malignancy and immune suppressive treatment are risk factors for reactivation of disease<sup>4</sup>. In active TB disease the symptoms (cough, fever, night sweats or weight loss) may be mild for many months<sup>2</sup>. M. tuberculosis that are resistant to the two most potent 1<sup>st</sup> line ATDs viz., Isoniazid and Rifampicin are termed as Multi Drug-Resistant TB(MDR-TB) strains and are resistant to Isoniazid and Rifampicin as well as to any of the second line ATDs (Amikacin, Kanamycin etc.) are termed as Extensive Drug-Resistant TB (XDR-TB)<sup>5</sup>. Prognosis: Prognosis of people with untreated TB is far worse than those, who seek treatment. Risk of relapse is small (<5%) and most recurrences occur within 5 months. A

patient with smear positive TB, without taking any treatment will remain infectious for ~2 yrs; 25% of untreated cases die within 1 year<sup>6</sup>. *Rajyakshama* is *Tridoshaja Vyadhi* and is primarily attributable to *Dhatukshya* (tissue imitation or loss). When there is obstruction in the *Srotamsi*, it leads to depletion of *Dhatu* specially *Rakta*. These result in diminution of *Dhatvagni* and all these together lead to *Rajyakshama*<sup>7</sup>.

## AIMS AND OBJECTIVES

To study the role of Ayurvedic management in *Rajyakshama/* Tuberculosis.

## CASE REPORT

A 37 years old, Hindu male patient visited at the outpatient department (OPD) of National Institute of *Ayurveda* with chief complaints of cough, excretion of sputum for the last 1year, haemoptysis, general weakness, gradually weight loss, insomnia, anorexia, loss of appetite, body ache, dark stool, dark urine, fever, dyspnea and chest pain. Patient had history of Pulmonary TB and ATT was going on since 4 months by a medical practitioner. Patient also complained burning sensation, weakness and nausea continued since taking of ATDs. There was no past history of any systemic



inflammatory disease, allergic disorder, whooping cough etc. Patient had no family history of lung disease. Patient had no other significant medical problem like hypertension, DM etc. Patient had no relevant personal history of smoking, tobacco chewing etc.

**Investigations** - Before patient came to NIA OPD the below investigations were carried out and the report revealed -

1. Haemogram report - Haemoglobin 11 gm%, ESR 50 mm/ hr, SGOT 14.14 U/L, SGPT 20.15 U/L, Alkaline phosphatase 50.92 U/L, Total Bilirubin .70 mg/dl, Blood Urea 32.50 mg/dl, Random Blood Sugar 63.0 mg %, S. creatinine .89 mg%, Bleeding Time 2min10sec, Clotting time 3min 40sec.

2. Sputum smear examination for acid-fast bacilli (AFB): Positive

3. Radiological investigations: X ray of chest PA view - It revealed Koch's lesion in middle and lower lobe of right lung. After 3 months of above investigations, Haematological and Sputum smear investigations were repeated and the reports were as follows-

Haemoglobin 4.3 gm%, ESR 50 mm/hr, SGOT 157.40 U/L, SGPT 120.0 U/L, Total bilirubin 1.8 mg % and AFB was negative.

In this report Haemoglobin was very low (4.3 gm%) so blood transfusion (3 units) was done and after that Hb was 8.3 gm %.

When patient came to NIA OPD again a chest x ray was advised. Koch's lesion was shown in middle and lower lobe of right lung in this X- ray report.

After 3 month of treatment in NIA OPD, investigations were repeated and it revealed - Haemogram report -Haemoglobin 10.7 gm %, ESR 20 mm/hr, SGOT 40 U/L, SGPT 38 U/L, Total bilirubin .80 mg % AFB was negative

Koch's lesion became a small calcified nodule in chest X- ray

## MATERIALS AND METHODS

**Place of study** - National Institute of Ayurveda OPD no.3

**Name of patient** - xxx

**Reg.No.** - OPD no. 00095

**Date of first visit** - 13/07/2018

**Age** - 37 years

**Gender** - Male

**Treatment protocol** -Patient was given the Following treatment along with ATDs - Medications which are mentioned in table no.1 were continued for 7 days and patient had relief in cough, dyspnea, chest pain, anorexia, dark stool and haemoptysis. After that medicine no.1 (*Bol Parpati* + *Kaharawa Pishti* + *Pippali Churana*) and medicine no. 5 (*Bharanarajasava*) was stopped and Vidaryadi *Ghrita* was added.



**Table 1** Medications, their dose, timing and adjuvant

MEDICINE	DOSE	TIMING	ADJUVANT
Combination of - 1. <i>Bol Parpati</i> <i>Kaharawa Pishti</i> <i>Pippali Churna</i>	250 mg 250 mg 500 mg	2 times a day before meal	Honey
2. <i>Vasaleha</i>	1/2 tsf	Two times a day	
3. <i>Dashamool Kashaya</i>	30 ml	2 times in a day	
4. <i>Draksharishta</i>	30 ml	2 times in a day after meal	
5. <i>Bhrangarajasava</i>	30 ml	2 times in a day after half an hour of taking food	With an equal amount of water

Medications which are mentioned in table no. 2 were continued for next 15 days. Patient had some relief in body ache, general weakness and insomnia. After 15 days of above treatment *Vidaryadi Kashaya* and *Ajaashwagandhadi Lehya* were administered. After 7 days of

administration of these drugs patient's body weight was gained. Then after 7 days *Vidaryadi Kashaya* was stopped and *Vidaryadi Ghrita*, *Ajaashwagandhadi Lehya* were continued. Gradually patient got relief in all symptoms. Patient follow up was done every fifteen days for next 3 months.

**Table 2** Medications, their dose, timing and adjuvant

<i>Vidaryadi Ghrita</i>	10 ml	2 times after taking of food	Luke warm water
<i>Vidaryadi Kashaya</i>	20 ml	2 times a day after taking of food	Luke warm water
<i>Ajaashwagandhadi Lehya</i>	½ Tsf	2 times a day after taking of food	Luke warm water

Medications which are mentioned in table no. 2 were continued for next 15 days. Patient had some relief in body ache, general weakness and insomnia. After 15 days of above treatment *Vidaryadi Kashaya* and *Ajaashwagandhadi Lehya* were administered. After 7 days of administration of these drugs patient's body weight was gained. Then after 7 days *Vidaryadi Kashaya* was stopped and *Vidaryadi Ghrita*, *Ajaashwagandhadi Lehya* were continued. Gradually patient got relief in all symptoms. Patient follow up was done every fifteen days for next 3 months.

## RESULTS

Over the period of 4 months his symptoms improved gradually. In 15 days of beginning of treatment patient had moderate relief and got a better relief after 2 months. During the treatment patient didn't have any other complaints.

## DISCUSSION

In the early phase of disease, symptoms and signs were often non-specific, consisting mainly of diurnal fever and night sweats, weight loss, anorexia, general malaise,



weakness and cough. Most of the cases pulmonary TB, cough was initially non reproductive and limited to morning with bouts of purulent sputum. Haemoptysis develops in 20-30% of cases. Four major drugs are considered first line agents for the treatment of TB: Isoniazid, Rifampicin, Ethambutol, Streptomycin and Pyrazinamid. Six classes of second-line drugs are generally used only for the treatment of patients with TB resistant to first-line drugs. ATDs have many adverse effects; the most common adverse reaction of significance is hepatitis (dark urine, loss of appetite), hyper uraemia and arthrelgia caused by Pyrazinamide. The optic neuritis caused by Ethambutol, pruritis and gastrointestinal upset etc. also common menifestation of drug intolerance<sup>1</sup>. As treatment of TB requires at least 6 month and drugs have many side effects so many people do not complete the course and leave it in the mid of the treatment which causes severe TB infection at later stage. Ayurvedic formulations which mentioned in ancient texts are effective, available at minimal cost, have no side effects and able to reduce associated symptoms of TB and the adverse drug effects of ATDs. Hence the ayurvedic treatment was started along with ATDs and continued until completion of Anti Tubercular Treatment (ATT).

Pulmonary TB can be compared with *Rajayakshama* in *Ayurveda*. *Acharya Charaka* says that when *Agni* is in its proper form, it leads to proper formation of *Dhatu*s. These *Dhatu*s are remaining in their respective *Srotas* and with the help of *Agni* lead to the formation of subsequent *Dhatu*s. But when there is obstruction in the *Srotamsi*, it leads to depletion of *Dhatu*s specially *Rakta*. These results in diminution of *Dhatvagni* and all these together lead to *Rajayakshama*. The cardinal symptoms of *Rajayakshama* under three headings viz. *Tri Rupa* (symptoms triad), *Shada Rupa* (group of six symptoms) and *Eka dasha Rupa* (group of 11 symptoms) –

1. *Amsaparshwabhitapa* (Pain in costal and scapular region)
2. *Santapakarapadayoh* (Burning sensation in palms and soles)
3. *Jwara* (*Pyrexia*)
4. *Kasa* (Cough)
5. *Swasha* (Dyspnoea)
6. *Swarabheda* (Hoarseness of voice)
7. *Shonita darsanama* (*Haemoptysis*)
8. *Bhaktodwesa* (Anorexia)
9. *Anilotha shula* ( Pain in visceral organs)
10. *Samkochamsaparshyoh* (Shoulder and scapular emaciation)
11. *Daha* (Burning sensation)
12. *Atisara* (Diarrhoea)
13. *Pittata raktakshaya cha aagama* (*Haematemesis*)



14. *Sirasah paripoornata* (Heavinees in the head)

These symptoms of *Rajayakshama* are similar to the Pulmonary TB.

15. *Kanthodhwamsa* (Tracheal shift)<sup>7</sup>

**Table 3** Drugs, their ingredients, properties and action.

DRUG	INGREDIENTS	PROPERTIES AND ACTION
<i>Bol Parpati</i> <sup>8</sup>	<i>Suddha-Parada, Suddha-Gandhaka</i> and <i>Bol Churna</i>	<i>Raktasravarodhaka, Ura Kshata</i>
<i>Kaharawa Pishti</i> <sup>9</sup>	Fine powder of <i>Kaharawa</i> , Rose water	<i>Manda jwara, Shira shool.</i>
<i>Pippali Churna</i> <sup>10</sup>	<i>Pippali Churna</i>	<i>Kasha-Hara, Swasha-Hara, Jwaraghna, Kapha-Vata Shamaka, Rasayana, Balya, Kshya-Hara, Yakshma Roga-Hara</i>
<i>Vasavleha</i> <sup>11</sup>	<i>Vasa-Swarasa, Sita, Pippali, Ghrita</i>	<i>Kasha-Hara, Swasha-Hara, Shool Prasamana</i> and <i>Tridosha-Hara</i> especially <i>Kapha-Pitta Shamaka.</i>
<i>Dasamool Kashaya</i> <sup>11</sup>	<i>Brahati, Kantakari, Shalparni, Prashniparni, Bilwa, Gambhari, Syonaka, Patla, Agnimantha, Gokshura</i>	<i>Tridosha shamaka</i> , especially <i>Vata-Kapha shamaka, Shool-Hara, Jwaraghna.</i>
<i>Draksharishata</i> <sup>12</sup>	<i>Draksha, Dhataki Pushpa, Twaka, Tejapatra, Ela, Nagakeshara, Priyangu Pushpa, Maricha, Pippali, Vidanga, Water</i>	<i>Kasha-Hara, Swash-Hara, Kshaya-Hara</i>
<i>Bhrangarajasava</i> <sup>11</sup>	<i>Bhrangaraja Swarasa, Haritaki, Pippali, Jayaphal, Lavang, Twaka, Ela, Tejapatra, Dhaya Pushpa, Nagakeshara</i>	<i>Balya, Dhatu Kshya</i> and <i>Rajayakshama, Swash-Hara, Kasha-Hara</i>
<i>Vidaryadi Ghrita</i> <sup>13</sup>	<i>Vidari, Eranda, Vrakshchikali, Punarnava, Devadaru, Mudgaparni, mashaparni, Aatmagupta, Jeevanapanchamoola, Hraswapanchamoola, Sariwa, Tripadi, Ghrita</i>	<i>Kasha-Hara</i>
<i>Vidaryadi Kashaya</i> <sup>14</sup>	<i>Vidari, Eranda, Vrikschikali, Punarnava, Devadaru, Mudgaparni, Mashaparni, Aatmagupta, Jeevanapanchamoola, Hraswapanchamoola, Sariwa, Tripadi,</i>	<i>Hradhya, Brimhana, Vata-Pitta Shamaka, Shosha-Hara, Swasha-Hara, Kasha-Hara</i>
<i>Ajaashwagandhadi Lehya</i>	<i>Ashwagandha, Madhu, Ajamamsa( prepare Kashaya), Sita, Aatmgupta Phal, Madhuyashati, Tugakshiri, Twaka, Ela, Patra, Lavang, Jatikoshha, Jatipatra</i>	powerful aphrodisiac, fights fatigue, improve muscle strength

*Bol Parpati* is *Rakta Stambhana* so useful in *Ura Kshata*. *Kaharawa Pishti* is useful in *Manda Jwara* (mild fever), *Shira Shool* (headache). *Pippali* is *Kapha Shamaka* due to *Katu Rasa*, *Vata Samaka* due to *Snigdha*

*Guna*, and *Rasayana* and *Balya* due to *Madhura Vipaka*. *Pippali, Vasavaleha, Bhrangarajasava, Draksharishata, Vidaryadi Kashaya* are *Swasha-Hara, Kasha-Hara, Kshaya-Hara, Balya* and *Brimhana*.



*Pippali* and *Dashamool Kashaya* both are *Jwaraghna*.

*Pippali* is mainly used in cough, asthma, bronchitis, pulmonary tuberculosis, chronic fever and allied diseases of respiratory system. *Pippali* acts as *Rasayana* (anti-ageing). It is frequently used in liver disorders, anaemia, anorexia, loss of appetite, general debility<sup>15</sup>. *Pippali* is antibacterial, anti-inflammatory, antitubercular, cough suppressor, immune stimulatory, and hepatoprotective<sup>16</sup>. *Vasavaleha* and *Dashamoola Kashaya* both are *Tridosha Shamaka* and *Shool-Hara*. *Vasaavaleha* is specially *Kapha-Pitta Shamaka*, *Dashamool Kashaya* is *Kapha-Vata Shamaka*. *Vidari* is *Vata-Pitta Shamaka*.

According to several studies, both aqueous and organic extracts of *Vasa* have bactericidal activity against Mycobacterial tuberculosis in vitro<sup>17</sup>.

## CONCLUSION

As *Rajyakshama* is *Tridoshaja* and *Dhatukshaya Janya Vyadhi* so *Balya*, *Brahangan*, *Rasayana* and *Tridosha Shamaka* medications were given in this case. These medication also have the properties of increase of *Aatur bala* and *Agni bala*. *Pippali* is the ingredient of most of the formulations which were given to

patient. As *pippali* is *Kapha-Vata Samaka*, *Rasayana* and *Balya* so patient got relief in *Swasha*, *Kasha*, *Kshaya*, *Yakshama*, *Jwara* etc. *Pippali* and *Vasa* are anti-tubercular agents so prevents patient from recurrent chest infection. Patient got satisfactory relief mainly in *Kasha*. Thus *Vasa* has an important adjunctive role in the treatment of Pulmonary tuberculosis. *Kaharwa pishti* and *Dashamoola Kashaya* are also *Jwaraghna* so they also have important role in get rid off the *Jwara*. As *Bol Parpati* is *Rakta Stambhaka* patient got relief in haemoptysis and black stool. *Ajaashwagandhadi Lehya*, *Draksharishta*, *Vidaryadi Grita* and *Bhrangarajasava* are *Balya*, *Brahangan*, *Rasayana* so they reduced the symptoms of generalised weakness, weight loss, *Dhatukshaya*, anorexia etc. These formulations were not only effective in reducing cough, suppressing haemoptysis and sputum formation, but also useful in controlling recurrent chest infections by improving the immunity of the patient. Significant results were obtained in this case. Thus the combination of herbo-mineral drugs had showed significant efficacy in the management of Pulmonary TB and adverse effect of ATDs.





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