

REVIEW ON RAJYAKSHAMA WITH A GLARE OF PULMONARY TUBERCULOSIS

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ABSTRACT

In Agrah varanan by Charaka in sutrasthana chapter - 25, Rajyakshama has been called as 'ROGA SAMUHANAMA' which means the 'Group of Diseases'. Due to its high rate of complexity, it has been given various synonyms like *ROGARAJA* by Charaka and *ROGARATA* by Sushruta. In this paper we present a general overview of introduction, pathogenesis, diagnosis and methods of RAJYAKSHAMA with respect to pulmonary tuberculosis. In presenting this review, we searched the various websites of international institutions like WHO and databases like PubMed, ResearchGate. This review has been written with an intention to develop a co-relation between the classical disease *RAJYAKSHAMA* and the present disease pulmonary tuberculosis since the clinical picture of both the diseases is quite similar.

KEYWORDS: *Rajyakshama, samprapti, nidana, sahasa, sandharana, kshaya.*

INTRODUCTION

The word *RAJYAKSHAMA* is self - explanatory. It is not contingent upon any other disease. It is the innovator of rest of the other diseases. Once a person suffers from this disease, if not cured on time may become the victim of various other complications, since the depletion of OJHA or IMMUNITY or DHATU KSHAYA is the peculiar feature of this disease. Looking at the seriousness of the disease, it has been allotted various synonyms like *ROGARAJA* by Acharya Charaka and *ROGARATA* by Acharya Sushruta. The paramountcy of rajyakshama has been considered by all the acharyas and they have given its place in their Samhitas at various sthanas like:

- Acharya Charaka in Nidana sthana chapter – 6 and Chikitsa sthana chapter – 8
- Acharya Sushruta in Uttartantra chapter – 41
- Astaang hridaya – shosh pratishedha prakarana
- Madhava nidana Prathama khanda chapter – 10
- Bhava Prakash chapter – 11

The gravity of rajyakshama has been presented by Acharya Sushruta in his Samhita in Uttartantra which states that:

“ अनेकरोगानुगतो बहुरोगपुरोगमः ।

दुर्विज्ञेयो दुर्निवारः शोषो व्याधिर्महाबलः ॥ ” [सु उ ४१/३]

Various diseases like atisaar [diarrhea], shoth [inflammation], pandu [anemia] emerge as the

complications of shosh. Just like the trail of subordinates follow the king, in the same manner these diseases emerge after the outbreak of the main disease. Again, just like the convoy of commanders precede the king or master similarly pratishaya [common cold], kaas [cough], swaas [breathlessness] pop out as the purvaroopta or prodromal symptoms of the disease. The disease whose causal factors are difficult to understand and whose treatment is not an easy task, such a disease is called as 'Mahabalshali' or disease of great strength by Acharya Sushruta.

Very often Yakshama, shosh, kshaya are used to mean the same. In our classical text books these are called paryaya or synonyms. *Rajyakshama* called as *shosh* [due to shoshan that is deterioration of dhatus] and *kshaya* due to anuloma and pratiloma kshaya of various dhatus. If there is a kshaya of first rasa then rakta then maans, meda and so on, this type of kshaya is known as Anuloma Kshaya and if kshaya occurs in the reverse order [first shukra then majja then asthi and so on] is known as pratiloma kshaya.

The word rajyakshama is made up by the combination of two words Raj (Raja or King) + Yakshama (Roga or Disease) means the disease occurring to the king.

It includes the lakshana sammuchaya or syndrome having three (tri) six (shad) and eleven (ekadash) rupas or clinical features.

Sushruta in his Samhita nidana sthana chapter - 5 (kushta nidanam) has mentioned kushta, jwara, shosh and netrabhishiyand as contagious disease that spreads through various means like droplets, touch, having food with the infected person etc.

प्रसंगाद् गात्र संस्पर्शान्निश्वासात्सहभोजनात् ।
सहशय्याऽऽसनाच्चापि वस्त्रमाल्यानुलेपनात् ॥
कुष्ठं ज्वरश्च शोषश्च नेत्राभिष्यन्द एव च ।
औपसर्गिकरोगाश्च संगक्रामन्ति नरान् नरम् ॥ [सु नि ५/३२]

The above shloka possesses all the causal factors that are responsible for the spread of any sort of contagious disease. It is best suited and includes all the abstinence which should be followed during the pandemic disease that is COVID 19 and other infectious diseases.

Pulmonary Tuberculosis is a serious bacterial infection caused by rod shaped, obligate and intracellular bacterium named mycobacterium tuberculosis. Cell wall contains high lipid content especially mycolic acid. It does not stain with gram stain due to high lipid content. It is a slow spreading, chronic, granulomatous bacterial infection characterized by gradual weight loss. Despite the fact that, the causative organism was discovered several years ago and very effective drugs and vaccines are available even though the disease remains the major threat to life.

Rajyakshama is a group of symptoms that arise due to sahasa [working beyond the capability] vegasandharana [suppressing the natural urges] kshaya [dissipation of dhatus] vishamaashan [irregularity in quantity and time of meal]. Rajyakshama is manifested by the vitiation of vata and kapha pradhan tridosha. It is primarily attributable to dhatukshaya, mainly shukrashaya.

TUBERCULOSIS remains the number one killer infectious disease among the adult population in developing countries even today. The WHO's 1990 global disease burden ranked TB in seventh position and expected to continue the same until 2020 in terms of morbidity.^[1] In India, TB continues to be a devastating health crisis with more than 3,00,000 deaths and 2.2 million new cases along with a huge economic loss.^[2] In India, TB in the community is managed by a centrally sponsored TB Control Program known as Revised National TB Control Program (RNTCP) and DOTS.

DOTS (Directly Observed Treatment Short-course), is the name given to the World Health Organization recommended tuberculosis control strategy that combines five components:

1. Government commitment (including both political will at all levels and establishing a centralized and prioritized system of TB monitoring, recording and training).
2. Case detection by sputum smear microscopy.

3. Standardized treatment regimen directly observed by a healthcare worker or community health worker for at least first two months.
4. A regular drug supply.
5. A standardized recording and reporting system that allows assessment of treatment results.

BACKGROUND

There is a historic story behind the origin of rajyakshama. Raja or King Chandrama was married to 28 daughters of Dakshaprajapati. Due to excessive indulgence with only one daughter named Rohini while ignoring the other 27 daughters, their father Dakshaprajapati, when came to know about this act of King Chnadrama, he got too angered and cursed the King. As a result, he became ill and suffered from the disease named Rajyakshama. It is a well-known fact that the MOON is known for its glint and luster and this luster is due to ample amount of OJHA or immunity because of which it shines. But as he became ill, he lost his shine due to OJHA KSHAYA or decreased immunity.

Then he went to Dakshaprajapati to find the solution of his curse and felt guilty of his doings. Dakshaprajapati called Ashwanikumars for the treatment of the King. Ashwanikumars increased the immunity or OJHA of Raja Chandrama and he became rid of the disease.

If we link up the cause and treatment of the classical disease rajyakshama and the present era disease which is Pulmonary Tuberculosis, we find a similarity to some extent. Both get well treated or recovered fast if the immunity or fighting power is well established.

It could also be best co-related with the Saahasanya rajyakshama that leads to raktanishthiwan [hemoptysis] while coughing and this is the cardinal symptom or sign that brings the patient to a doctor.

Overall ojha plays a key role in the management of this disease. Since, we all know that the immunocompromised people are more prone to any sort of infection while those which are not.

By now we conclude that the one whose immune power is strong, could fight any sort of infectious disease as the disease be it communicable or non-communicable, first attacks the immune system.

METHODOLOGY

Different classical texts written by our acharyas, journals, research papers, articles and databases are referred for studying the various concept like etiology, pathogenesis of RAJYAKSHAMA w. s. r to pulmonary tuberculosis and its efficacy in manifestation and sequelae of Rajyakshama w. s. r to pulmonary TB.

Pathogenesis

Acharya Charaka has mentioned the pathogenesis of all the four types of rajyakshama in nidana sthana chapter - 6. All these lead to vitiation of dhatus or dhatukshaya. This dhatukshaya initiates the process of pathogenesis in rajyakshama patient.

In rajyakshama, all the seven dhatus get converted into mala and passed away in the form of stool rather than being partly converted into ojha. This mala carries the prana (life) of the patient and therefore it is of key importance to protect the excessive loss of mala of the patient. In addition to this, there is also decreased or complete loss of dhatuagni due to which there is no further production of successive dhatus. This metabolic dysfunction leads to loss of rasa (tissue fluid), rakta (blood), mansa (flesh or muscle), meda (adipose tissue),

shukra (generative tissue). This anuloma kshaya leads to the decline in the ultimate extract of all dhatus that is *OJHA* or *IMMUNITY*. The patient of RAJYAKSHAMA is trapped in this vicious circle of anuloma kshaya and pratiloma kshaya.

OJHA or immunity is very important as the whole spectrum of the disease is based on the immune response of the host.

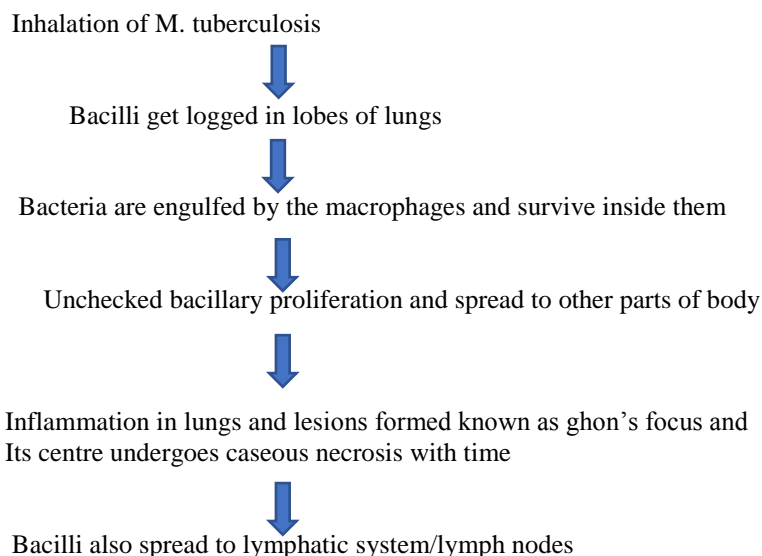
Based on pathogenesis, TB is of 2 types

Primary TB - occurs in non-sensitized hosts or in person who has no previous exposure to organism.

Secondary/Post TB – occurs in sensitized host or in the person who has previous exposure to the organism.

Miliary TB is a rare form of active TB that occurs when bacteria find their way into the bloodstream.

Pathogenesis of Ptb



- Inflammatory reaction involving lymph nodes in Ghon's focus is known as Ghon's Complex.
- Activated macrophages secrete cytokines (TNF) and these TNF recruit more macrophages.
- Differentiation of macrophages into epithelioid cells and formation of granulomas occurs.
- Contains mannose capped glycolipids to bind to the macrophages.
- Able to survive and multiply inside macrophages by avoiding lysosomal killing.
- Acid and alcohol fast bacilli means that it does not decolorize with acid or alcohol on staining with Ziehl – Nielsen stain.
- Natural reservoir – human
- Mode of transmission – aerosol

Etiology

In Ayurveda the 4 causes of Rajyakshama are sahasa, vegsandharana, kshaya and vishamasana. Pulmonary tuberculosis caused by the bacterium *M. tuberculosis*. TB is contagious. One can get TB by breathing in air

droplets from a cough or sneeze of an infected person. Sushruta has used the term 'shosh' as the synonym for rajyakshama and described the seven causative factors responsible for the origin of the disease. These include

1. Ati vyavayey [shukra kshaya]
2. Ati shoka [majja kshaya]
3. Vridhawastha [asthi kshaya]
4. Ati vyayayaam [meda kshaya]
5. Ati adhwagaman [maans kshaya]
6. Vrana [rakta kshaya]
7. Ura – kshata [rakta kshaya]

Besides the above seven factors, Acharya Sushruta also mentioned *upwaas* [excessive fasting] as one of the reasons that forms the basis of the disease. Thus, we conclude that in rajyakshama, the root cause of the disease is dhatu kshaya.

Key Diagnostic Factors

- Cough that lasts for three or more weeks.
- Night sweats

- Fever
- Pleuritic chest pain
- Anorexia
- Hemoptysis
- Weight loss

Investigations to Order

- Chest X ray

In active pulmonary TB, infiltrates or consolidations and/or cavities are often seen in the upper lungs with or without mediastinal or hilar lymphadenopathy. Lesions may appear anywhere in the lungs.

- Sputum acid fast bacilli smear

For suspected cases of PTB, usually three samples are collected early in the morning on different days. A positive AFB smear mean that the treatment regimen is not effective and needs to be changed. It also means that the person is still likely to be infectious and can pass the mycobacteria to others through coughing or sneezing.

- Sputum culture

The diagnostic gold standard for active tuberculosis is the detection of bacteria by culture or molecular methods. Usually, gram stain is used for sputum culture. The media encourages the growth of bacteria. If several bacteria grow, the culture is said to be positive. Test results may take from 1 day to several weeks.

- Complete blood count

Usually the PTB patients are anemic, neutropenic and thrombocytopenic with raised ESR.

Investigations to Consider

- Gastric aspirate
- Bronchoscopy and bronchoalveolar lavage
- Tuberculin skin test (montoux test)

Risk Factors

- HIV Infection
- Alcoholism
- Immunosuppressive therapy like use of corticosteroids
- Diabetes mellitus
- Workers in healthcare facilities

Ayurvedic Management of Ptb

Studies report that around 50% - 80% of the patients visit to general physicians and private practitioners. These physicians use ayurvedic medicines for the management of TB.

As we all know PTB is a lung disorder and in Ayurveda there are unaccountable drugs that combat with the disorders related to lungs. Today the entire world knows the efficacy and seriousness of our classical regimen in the management of a deadly epidemic disease COVID 19. As of we know that corona viruses are a family of viruses that cause illnesses such as the common cold, Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) and these all belong to respiratory tract infections. This itself justifies that if PTB managed carefully with ATT along with ayurvedic

medicines could definitely uphold the decline in death rates due to PTB.

RESULT AND DISCUSSION

Rajyakshama is a Tridoshaja vyadhi with the dominance of vata and kapha dosha. Here, all the sapta dhatus are involved in the manifestation of the disease. All these dhatus are in the state of kshyaawastha. The symptoms of rajyakshama differ according to the involvement of the four above mentioned factors. Before planning the treatment, it is very much necessary to understand the involvement of causes in the disease and process of pathogenesis. Samprapti vighnana plays very important role in the diagnosis of the disease.

Our ayurvedic drugs not only heal the disease but also enhance the immunity which is of utmost importance in the TB patient.

Government of India should include ayurvedic medicines in Revised National TB Control Program.

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