

**HETU AND SAMPRAPTI OF RAJAYAKSHMA W.S.R. TO PULMONARY TUBERCULOSIS**Dr. Savitri Soni<sup>\*1</sup>, Dr. Sanjay Shukla<sup>2</sup> and Dr. Rupendra Chandrakar<sup>3</sup><sup>1</sup>MD Scholar, PG Department of Rog Nidan Evum Vikriti Vigyana, G.A.C. Raipur (CG) India.<sup>2</sup>Reader, PG Department of Rog Nidan Evum Vikriti Vigyana, G.A.C. Raipur (CG) India.<sup>3</sup>Reader, PG Department of Samhita Siddhanta, G.A.C. Raipur (CG) India.**\*Corresponding Author: Dr. Savitri Soni**

MD Scholar, PG Department of Rog Nidan Evum Vikriti Vigyana, G.A.C. Raipur (CG) India.

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**ABSTRACT**

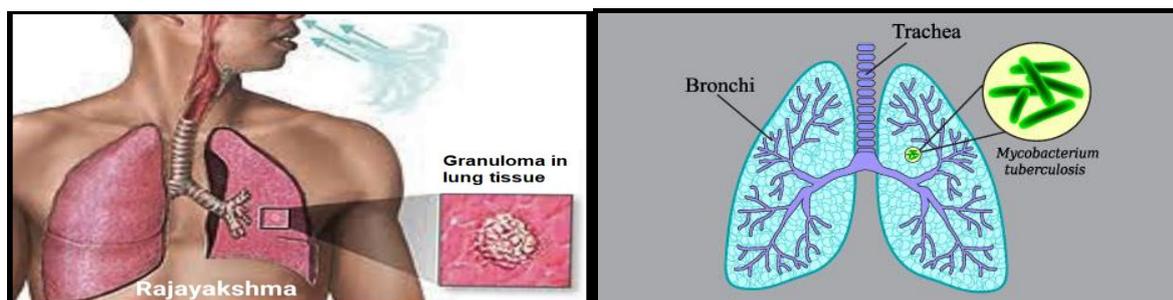
*Rajayakshma* is a group of symptoms manifests by indulging *Sahasa* (by excessive stress and strain), *Vegasandarana* (suppressing the natural urges), *Kshaya* (diminishing of *dathu*) and *Vishamashana* (opposite to dietary regimen). It is a *Madhyama Rogamarga Vyadhi* manifested *Shosha*. There is the manifestation of *Ekadasha Rupa* where it affects the *Tridosha* and *Sapta Dhatu*. *Ayurveda* classics emphasis on the *nidana* and the *samprapti* as the knowledge of *nidana* and the *samprati* is very necessary before understanding *chikitsa*. *Chikitsa* is nothing, it is *Nidana Parivarjana* and *Samprapti Vighatana*. Aims and Objectives of the paper is to express the basic concept of *hetu and samprapti of Rajayakshma w.s.r. to pulmonary tuberculosis* to its full perspective. *Ayurveda* elementary books were thoroughly searched to compile information about *Rajayakshma* to evaluate the *nidana* and *samprapti* of the disease. *Rajayakshma* is a unique disease and the classification of disease according to the involved *nidana* is divided as *Sahasajanya Rajayakshma*, *Vega Sandarana janya Rajayakshma*, *Kshaya janya Rajayakshma*, and *Vishamashana janya Rajayakshma*.

**KEYWORDS:** *Rajayakshma, Samprapti, Nidhana, Sahasa, Sandharana, Kshaya.***INTRODUCTION**

*Rajayakshma* is group of diseases gets manifested with the vitiation of *tridosha* and *sapta dhatu*. Due to indulging in *Sahasa*, *Vega Sandarana*, *Kshaya*, and *Vishamashana*, there is the manifestation of *Ekadasha Rupa*.<sup>[1]</sup> *Rajayakshma* is considered as king of all diseases.<sup>[2]</sup> Thus, it being termed as Raja (king) & Yakshma (decay), which means of fraying condition of huge magnitude. Symptoms of *Rajayakshma* are *parshwashoola*, *jawara*, *kasa* and *raktashthiwana*.<sup>[3,4]</sup>

Therefore, the present study entitled has been designed to analyze and evaluate the complete concept and etiopathogenesis of *Rajayakshma* based on clinical as

well as literature survey, as a whole in light of *Ayurvedic* concepts and modern view. In this research paper the diagnosed cases of tuberculosis are taken because *Rajayakshma* is a disease can better correlated with pulmonary tuberculosis in this era. Much effort has been done by the followers of both systems to understand the pathogenesis of *Rajayakshma* and Pulmonary Tuberculosis respectively. Hence, each event of pathology of both these clinical entities is described very precisely in their concerned treatises. Though there is a difference in the pathogenesis of *Rajayakshma* and Pulmonary Tuberculosis but then again, the clinical picture of both is quite similar. Fig 1.

**Fig. 1: Image of Rajayakshma Rogi.**

The definition of 'Chikitsa' explained by Acharya Charaka is perfectly applicable in case of *Rajayakshma*. According to Charaka the treatment of disorders should consist of such as treatment is given with the objective of ensuring that no discordance will arise in the *Dhatu*s and there is continuance of their concordance.<sup>[5]</sup>

#### AIMS AND OBJECTIVE

1. To study the *Ayurvedic vivechana* of *Rajayakshma*
2. To study the etiopathogenesis (nidana and samprapti) of *Rajayakshma*.
3. To study of *Rajayakshma* correlation with Pulmonary Tuberculosis.

#### Prevalence<sup>[6]</sup>

1. Every year, 10 million people fall ill with tuberculosis (TB). Despite being a preventable and curable disease, 1.5 million people die from TB each year – making it the world's top infectious killer.
2. TB is the leading cause of death of people with HIV and also a major contributor to antimicrobial resistance.
3. In 2019, data were reported by 202 countries and territories that account for more than 99% of the

world's population and estimated number of TB cases.

#### MATERIAL AND METHOD

Different *Ayurveda* texts, journals, research papers, articles, authentic websites are referred to study the concept of *Hetu* and *Samprapti* of *Rajayakshma* w.s.r. to Pulmonary Tuberculosis and its efficacy in manifestation and sequelae of the *Rajayakshma* w.s.r. to Pulmonary Tuberculosis.

#### *Ayurvedic concept of Rajayakshma*

According to *Ayurveda*, health is defined as "where physical, mental and spiritual state is in balanced with respect to body and function". The imbalance state of all those are known as *dhatu vaishamya* / *vyadhi*. There are so many diseases and these have been described in *Ayurveda*. *Rajayakshma* is also one of them. In *Rajayakshma*, all seven *Dhatu* convert primarily in to *mala* and passed away rather than being partly converted to *ojas*, which considered as carrier of *Prana*. Ancient Acharya have classified causes of *Rajayakshma* into four Categories<sup>[7-11]</sup> Fig 2.

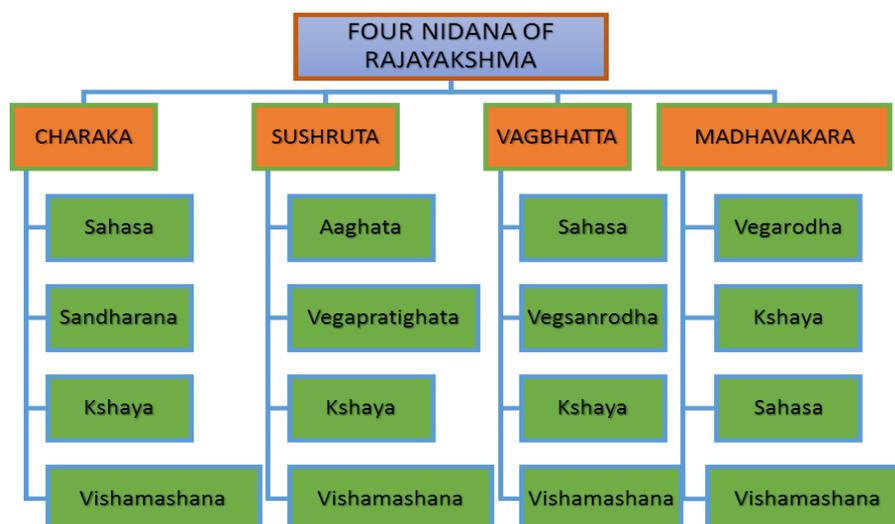


Fig. 2: Four Categories of *Rajayakshma*.

For the fulfillment of second aim<sup>[12]</sup> of *Ayurveda*, it is necessary to examine the disease. It is not possible to cure a disease without proper examination. It is the reason *Ayurveda* has described "Trisutra i.e. *Hetu*, *Linga* and *Aushadha*". *Hetu* was said first in *Trisutra*, which shows its importance in *Ayurvedic* system of medicine.

#### NIDANA / HETU

*Nidana* or *Hetu* (causative factor of disease) is also well known as "Vyadhi vinishchaya karanam". It is stated in

*Ayurvedic* classics that avoiding causes of disease (*nidana parivarjanam*) is considered as a part of treatment of that particular disease. So by using this concept, *samprapti* (pathogenesis) of the disease can also prevent. Thus, a great emphasis is laid on *nidana* of a disease to understand it completely for prevention as well as effective management. The *nidana* of all the four categories of *rajayakshma* is summarized as per *ayurvedic* classics in Table No.1.

Table 1: *Nidana* of four categories of *Rajayakshma*.

	Types of <i>Rajayakshma</i> <sup>[13-18]</sup>			
	<i>Sahasa</i>	<i>Vega Sandharana</i>	<i>Kshaya</i>	<i>Vishamashana</i>
Definition i.e. meaning	Excessive and strenuous work or fight or exercise beyond one's capacity	Suppression of natural urges for defecation, micturition etc.	Depletion or discretion <i>Acharya Sushruta</i> has described it as the synonym of ' <i>Shosha</i> ' and explains that the loss of capability of body to do work is called <i>Kshaya</i>	Intake of food without considering the <i>Ashta Vidhi Vishesha Ayatanani</i> .
Description with Example	<ul style="list-style-type: none"> <li>i. Weak person fight with strong person</li> <li>ii. Hardworking with exertion</li> <li>iii. Excessive talkative/speaks too much Swims in water for long distance</li> <li>iv. Forceful massage, Application of pressure by feet</li> <li>v. Runs fast to cover a long distance</li> <li>vi. indulging such other regimens</li> <li>vii. excessive physical exercise, studying for long duration</li> <li>viii. Fasting, Carries heavy weight</li> <li>ix. Injury</li> <li>x. Heavy vehicle raiding</li> <li>xi. following down from height</li> <li>xii. any other type of injury</li> </ul>	<ul style="list-style-type: none"> <li>i. The person who are in front of king attending meeting with wise peoples</li> <li>ii. while travelling high or low vehicle</li> <li>iii. in front of female.</li> </ul>	Gangadhara comments that in <i>Rajayakshma</i> it refers to depletion of <i>Rasa Dhatu</i> and <i>Shukra</i> while <i>Yogendranath</i> says that it refers to depletion of <i>Shukra, Oja</i> and <i>Sneha</i> . This may be because <i>Rasa</i> and <i>Oja</i> are taken as synonyms. According to both <i>Acharya Charaka</i> and <i>Acharya Sushruta</i> this depletion of <i>Dhatu</i> s can take place by two ways that can be termed as <ul style="list-style-type: none"> <li>i. <i>Anuloma Kshaya</i> and</li> <li>ii. <i>Pratiloma Kshaya</i>.</li> </ul>	These are <ul style="list-style-type: none"> <li>i. <i>Prakruti</i> (nature of food)</li> <li>ii. <i>Karana</i> (improper preparation)</li> <li>iii. <i>Samyoga</i> (combination of food)</li> <li>iv. <i>Matra</i> (less or more quantity)</li> <li>v. <i>Desha</i> and <i>Kala</i> (opposite to <i>Desha</i> /place and time)</li> <li>vi. Not consuming <i>Sadrasayukta Bhojana</i> also not following <i>Ahara Vidhi Vidhana</i></li> <li>vii. Intake of <i>Viruddha Ahara</i></li> </ul>
Reasoning	Due to these in excesses vitiates <i>Vata</i> that affects the <i>Kapha</i> normally residing in <i>Urha Pradesha</i> vitiates <i>Pitta</i> moves upwards side wards and downwards.	Than <i>Vata</i> gets aggravated, this aggravated <i>Vata</i> will vitiates <i>Pitta</i> and <i>Kapha</i> . <sup>[17]</sup> <i>Vijayarakshita</i> has explained that here the <i>Vegas</i> refer to only the urges for flatus, defecation and micturition and not all other <i>Vegas</i> that are mentioned in " <i>Navegandharniya</i> " chapter of <i>Charaka Samhita</i>	<i>Anuloma Kshaya</i> means the depletion of <i>Dhatu</i> s takes place in the direction of their nourishment i.e. <i>Rasa</i> then <i>Rakta</i> then <i>Mamsa</i> and so on. <i>Pratiloma Kshaya</i> means the depletion of <i>Dhatu</i> s takes place in the direction opposite to their nourishment i.e. <i>Shukra</i> then <i>Majja</i> then <i>Asthi</i> and so on <sup>[18]</sup>	Due to above these factor <i>Tridosha</i> gets vitiates. These <i>Doshas</i> spread all over the body and enter the circulation. The entire food taken by the individual is converted into stool and urine rather than the <i>Dhatu</i> s. The afflicted individual is sustained by the stool,
Remark		Also while describing the diseases caused due to suppression of 13 urges, <i>Acharya Charaka</i> has not mentioned <i>Rajayakshma</i> as their manifestation	According to <i>Acharya Charaka</i> , it can be divided into 2 categories i.e. <ul style="list-style-type: none"> <li>i. Psychological like <i>Bhaya, Shoka, Chinta, Udvega</i> etc. and</li> <li>ii. nutritional like intake of <i>Ruksha Anna Pana</i> by intake of less quantity of food, fasting by weak body, <i>Ativyavaya Anahara</i>.</li> </ul>	Therefore, the fecal matter of individual is suffering constipation or other who are extremely emaciated are weak should be retained <i>Doshas</i> accumulated due to irregular dieting separately produce the further emaciation and individual <i>Dosha</i> will produce the different symptoms in the body and manifest <i>Rajayakshma</i> .

**SAMPRAPTI**

Acharya Charaka has mentioned the pathogenesis of all the four types of *Rajayakshma* in detail in *Nidana Sthana*. However, A common pathogenesis has been described in *Chikitsa Sthana*. Other Acharyas have mentioned pathogenesis of two types viz. *Anuloma Kshaya* and *Pratiloma Kshaya*. *Rajayakshma* is primarily attributable to *Dhatukshaya* (tissue emaciation or loss). This process universally initiates the process of pathogenesis in *Rajayakshma* patients. In addition, there is inevitable metabolic dysfunction (*Dhatwagninasana*), in which *rasa* (tissue fluid), *rakta* (blood), *mamsa* (muscle), *meda* (adipose tissue), and *sukra* (generative tissue) are lost. This leads to ultimate deterioration of immunity or *ojokshaya* which is known as *Anulomakshaya*. As per Ayurvedic concepts, an unusual

metabolic change occurs leading to loss of various *dhatu*s (tissue) such as *Ojokshaya*, *sukra*, *meda dhatu*s to *rasa dhatu* preceding each other, which is known as *Pratilomakshaya*.<sup>[19]</sup>

**Samanya Samprapti** <sup>[20-23]</sup>

The *Samanya Samprapti* of *Rajayakshma* has been described by Acharya Charaka in a very precise way. The systematic flow diagram for *samanya samprapti* is given in Fig No.3. He says that when *Agni* is in its proper form, it leads to proper formation of *Dhatu*s. These *Dhatu*s remain in their respective *Srotas* and with the help of *Agni* lead to the formation of subsequent *Dhatu*s. But when there is obstruction in *Srotamsi*, it leads to depletion of *Dhatu*s specially *Rakta*.<sup>[23]</sup>

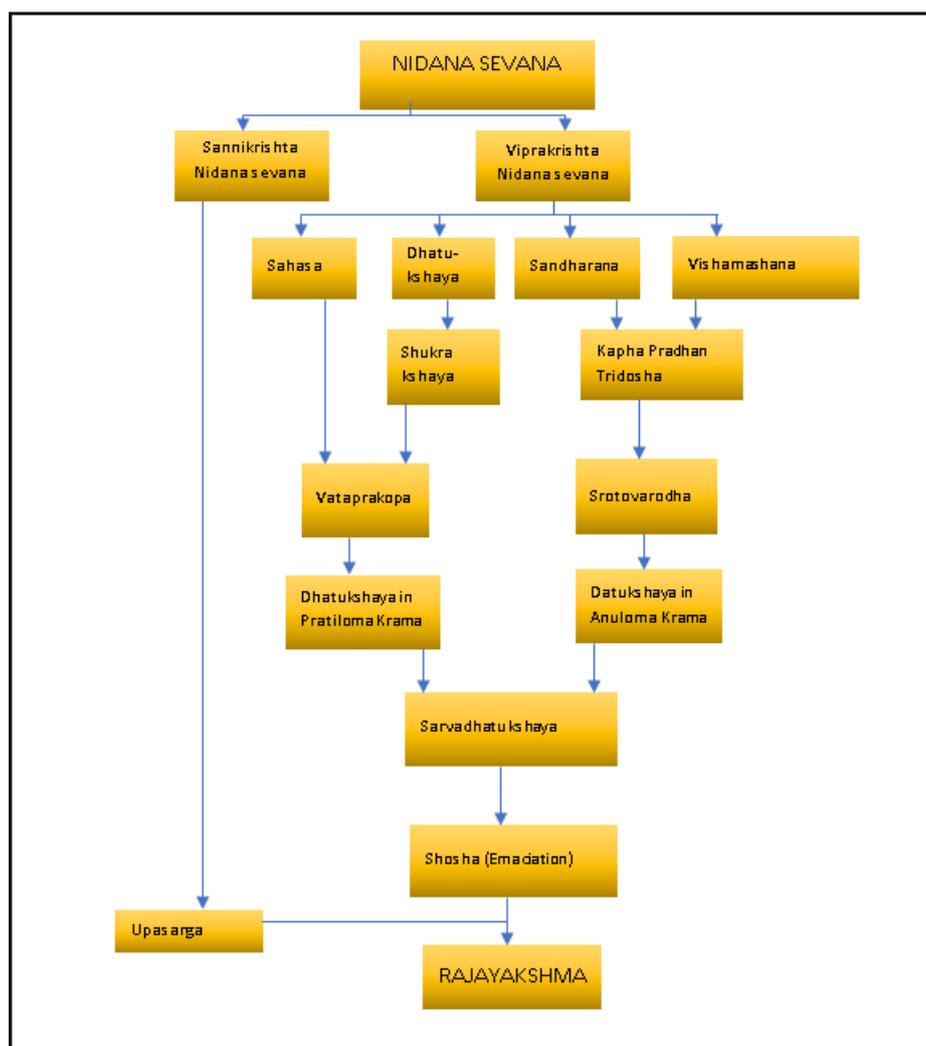


Fig. 3: Samanya Samprapti of Rajayakshma.

**Vishishta Samprapti**

The *vishishta samprapti* for all the four types of *Rajayakshma* i.e. *Sahasaja Rajayakshma*, *Sandharanja Rajayakshma*, *Kshayaja Rajayakshma* and *Vishamashanaja Rajayakshma* are shown systematically by flow sketch diagram in Fig No.4,5, 6 and 7 respectively.<sup>[24-27]</sup>

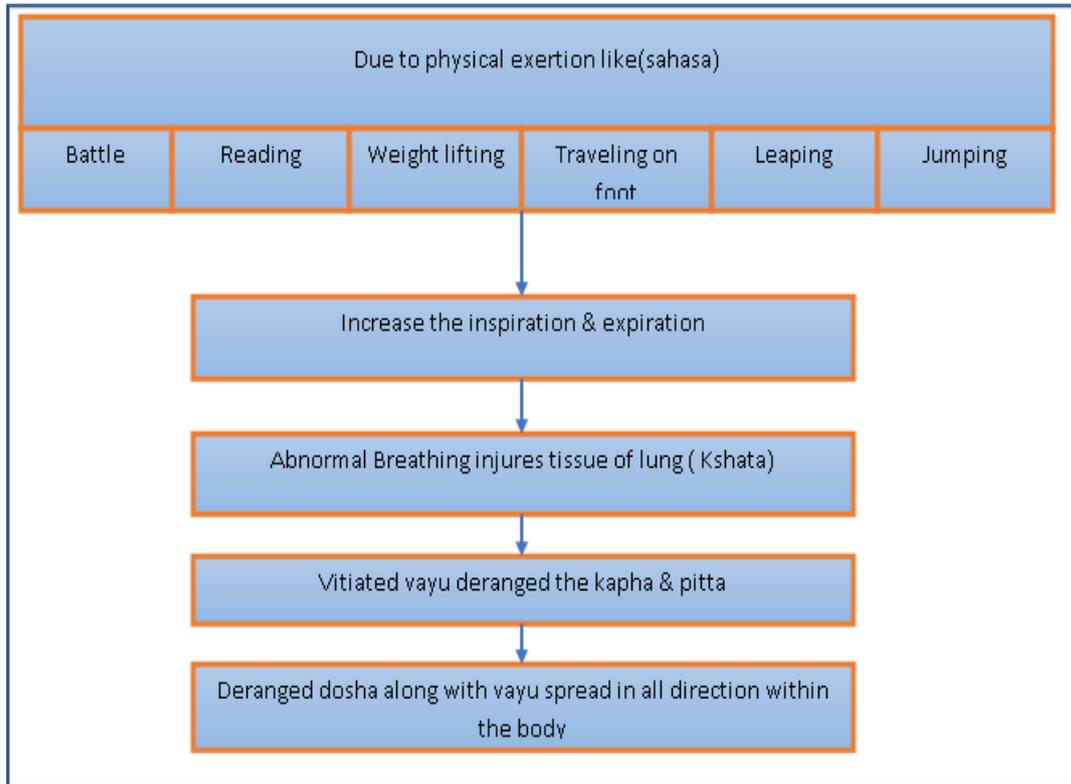


Fig. 4: Vishishta Samprapti of Sahasaja Rajayakshma.<sup>[24]</sup>

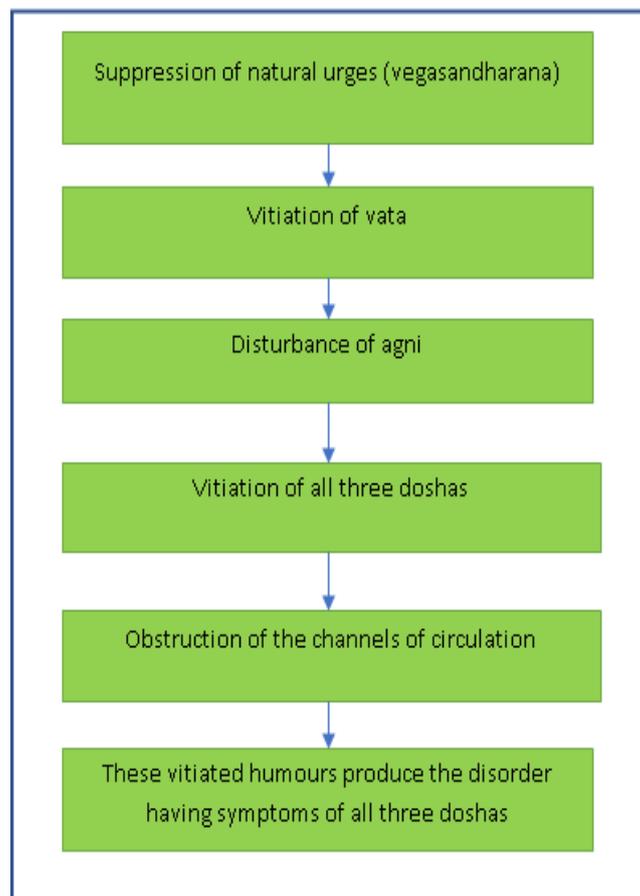


Fig. 5: Vishishta Samprapti of Vega Sandharana Rajayakshma.<sup>[25]</sup>

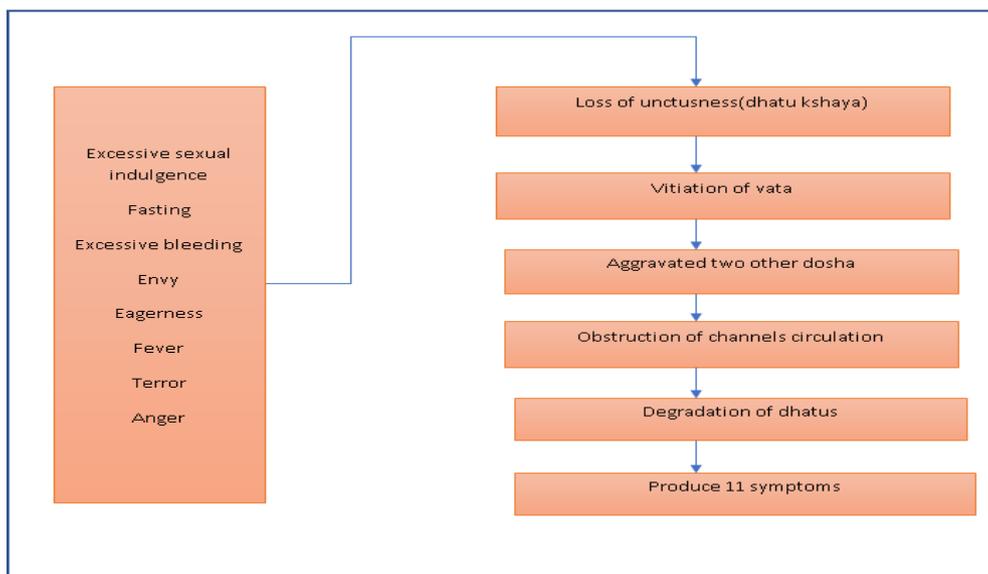


Fig. 6: Vishishta Samprapti of Kshayaja Rajyakshma.<sup>[26]</sup>

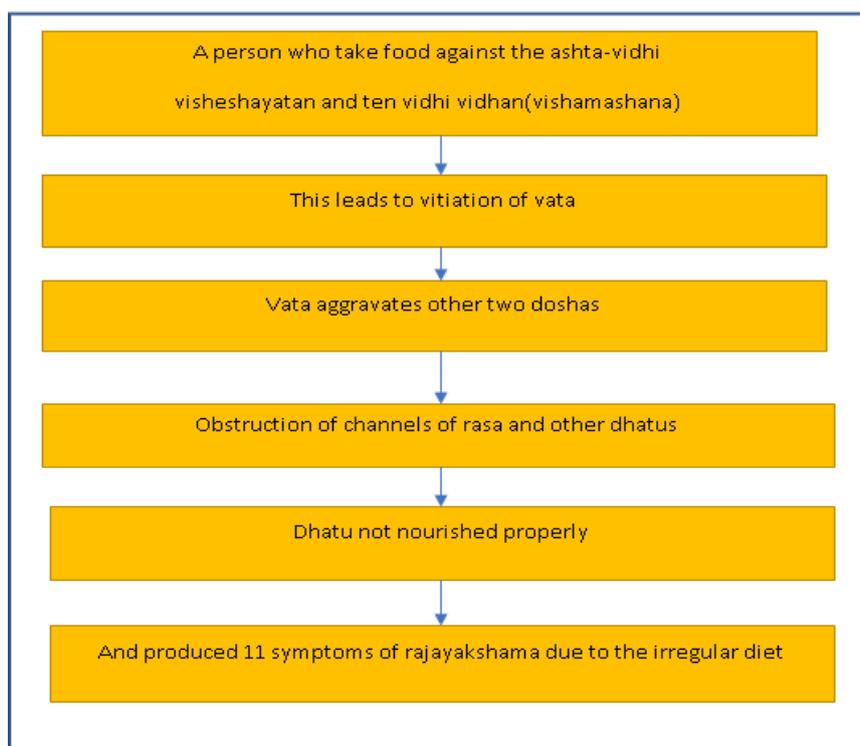


Fig. 7: Vishishta Samprapti of Vishamashanaja Rajyakshma.<sup>[27]</sup>

**Pulmonary Tuberculosis**

**Definition**

This is the disease of lungs, pleurae or mediastinal lymph nodes caused by Mycobacterium tuberculosis.

**Predisposing factors**

1. Age: All ages but highly susceptible below 3 years particularly in infancy.
2. Devitalised conditions chronic malnutrition, diabetes, HIV infection.
3. Economic status: Common in poor.
4. Generic factors: Host resistance may be lowered by genetic factors.

5. Addiction to tobacco, alcohol, etc.

6. Occupational diseases like silicosis, asbestosis.

7. Causative organisms: Two species-M. tuberculosis and M. bovis affect the human race.

**Pathogenesis and Pathological Changes**

Tubercle bacilli get entry into the human body through various routes; but of these, respiratory, gastro-intestinal and cutaneous routes are common. When the child is exposed to a diseased individual, via droplet infection the organisms enter the respiratory tract commonly. Because of adequate ventilation, lower two thirds of the lungs are the common sites for lodgment. The organisms are

ingested by macro phages; then organisms either die or multiply, and ultimately are carried to the regional lymph nodes and then to other organs of the body through blood stream before specific immunity develops. During this period as they produce no toxin so no general reaction, and no symptom are present. Afterwards, the characteristic tissue reaction develops anywhere according to the site of lodgment of the organism. This consists of central necrotic area undergoing caseation, epithelioid cells, Langerhans type of giant cells and a lymphocytic barrier at the periphery. This is the characteristic lesion of tuberculosis. When caseation develops, this is associated with liberation of various cytotoxic materials from T lymphocytes giving rise to

marked reduction in the population of the organism. At the same time these toxic materials destroy the parenchymal tissue of the host. After this the process of primary infection gradually withers away and closed up by a process of healing by fibrosis, calcification, etc.

#### Modern view and status of TB

TB is caused by bacteria (*Mycobacterium tuberculosis*) and it most often affects the lungs. TB is spread through the air when people with lung TB cough, sneeze or spit. A person needs to inhale only a few germs to become infected. The pathophysiology of TB is systematically reflected by flow diagram in Fig 8 and Fig 9.

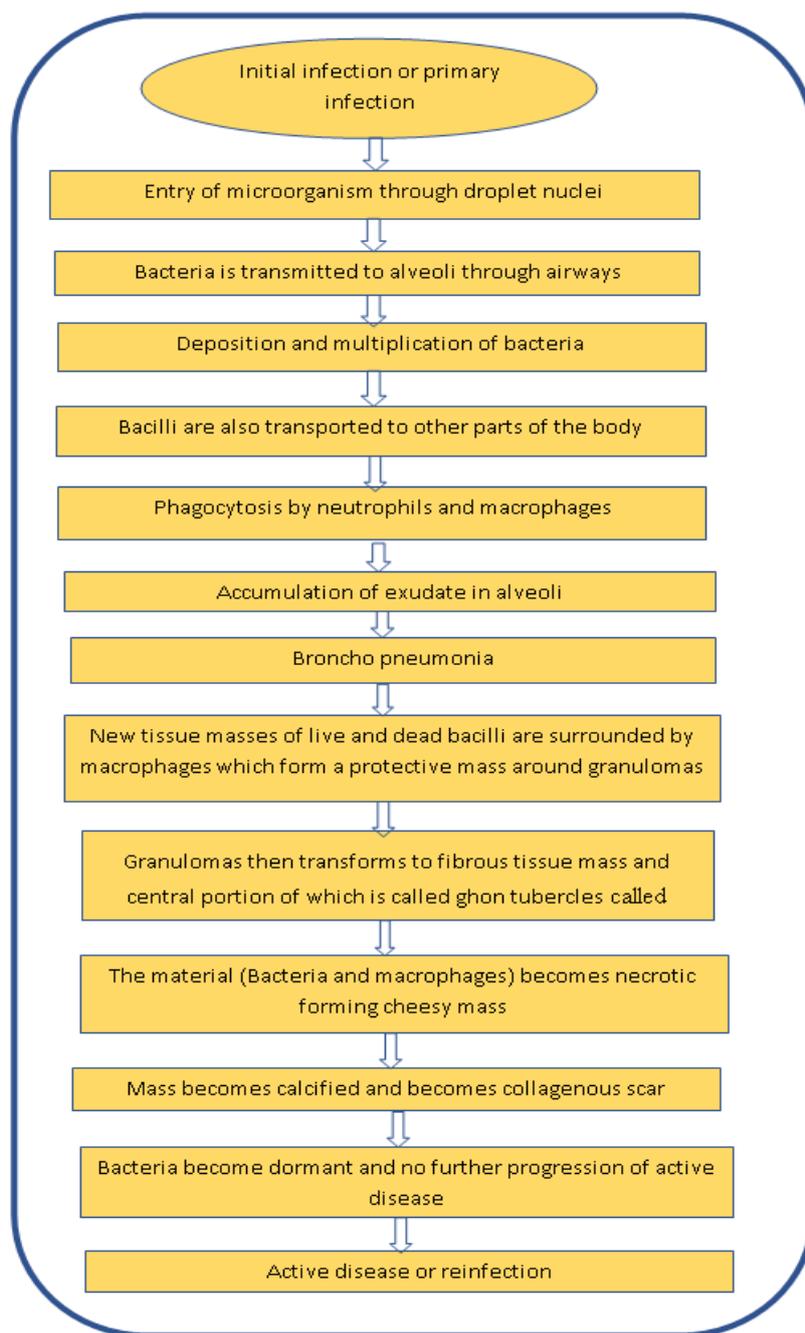
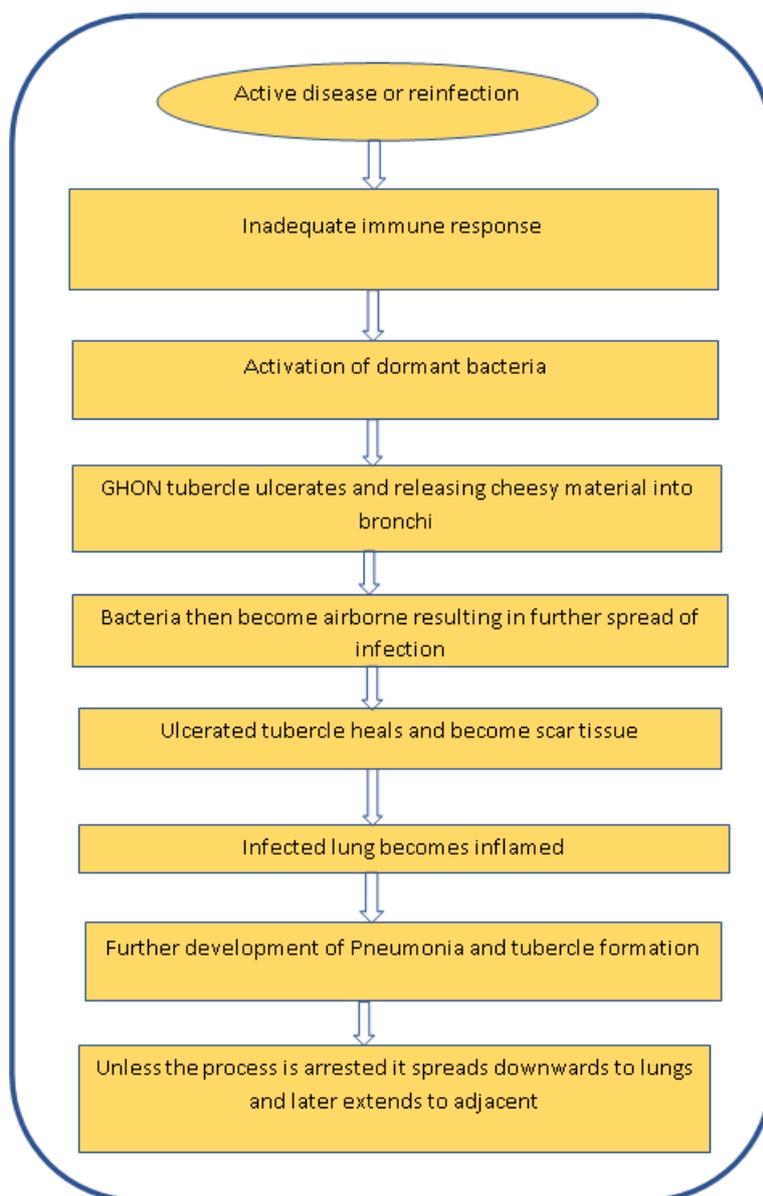


Fig. 8: The pathophysiology of TB (Part-1).



**Fig. 9: The pathophysiology of TB (Part-2).**

## CONCLUSION

*Rajayakshma* is a *Tridoshaja Vyadhi* with the dominance of *Vata* and *Kapha Dosha* and it is an ideal example for *Madhyama Roga Marga*. Here all the *Sapta Dhatus* are involved in the manifestation of *Rajayakshma*, where all *Dhatu* are in *Kshayavasta*. The symptoms of *Rajayakshma* is differs according to the involvement of *Sahasa* (by excessive stress and strain) *Vegasandarana* (suppressing the natural urges), *Kshaya* (diminishing of *dathu*) *Vishamashana* (opposite to dietary regimen). The manifestation of *Rajayakshma* by *Kshaya* takes place by two different pathways according to the direction in which depletion of *Dhatu*s takes place. Before planning the treatment, it is very necessary to understand the involvement of causes in the diseases and process of pathogenesis. Therefore, avoid the all *Nidana* which are accountable to produce *Rajayakshma*. *Samprapti Vighatana* is very important & helpful to diagnosed the disease.

## REFERENCES

1. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, *Nidana Sthana*, chapter 6, verse no.4. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (1): 193.
2. Vagbhata, *Ashtanga Hridaya Nidana* 5/3, In K R Shrikantha Murthy, *Ashtanga Sangraha* of (text book withenglish translation) Vol I, Third edition, Varanasi.
3. Sushruta, *Sushruta Uttara Tantra* 41/11, In Sharma PV. *Sushruta Samhita* (with English translation of text and Dalhan's commentary along with critical notes) Vol II, Reprint edition, Varanasi, Chaukhambha Visvabharti, 2005.
4. Agnivesh, *Charak Chikitsa* 8/44, In K R Srikantha Murthy *Charak Samhita* (text book with English translation) Vol II, reprint edition, Varanasi, Chaukhambha Orientalia, 2009.

5. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Nidana Sthana, chapter 8, verse no.22. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (2): 228.
6. GLOBAL TUBERCULOSIS REPORT: EXECUTIVE SUMMARY, 2019.
7. Agnivesh, Charak Nidana 6/3, In K R Srikantha Murthy Charak Samhita (text book with English translation) Vol I, reprint edition, Varanasi, Chaukhambha Orientalia, 2009.
8. Agnivesh, Charak Chikitsa 8/13, In K R Srikantha Murthy Charak Samhita (text book with English translation) Vol II, reprint edition, Varanasi, Chaukhambha Orientalia, 2009.
9. Sushruta, Sushruta Uttara Tantra 41/8, In Sharma PV. Sushruta Samhita (with English translation of text and Dalhan's commentary along with critical notes) Vol II, Reprint edition, Varanasi, Chaukhambha Visvabharti, 2005.
10. Vagbhata, Ashtanga Hridaya Nidana 5/4, In K R Srikantha Murthy, Ashtanga Sangraha of (text book with English translation) Vol I, Third edition, Varanasi.
11. Madhavakara, Madhava Nidanam 10/1, In Vijayarakshita and Srikantha Datta, Madhukosha (Sanskrit Commentary) and Vidyotini (Hindi Commentary along with critical notes) on Madhava Nidanam, Vol I, reprint edition, Varanasi, Chaukhambha Sanskrit Sansthan, 2005.
12. Sushruta, Sushruta Uttara Tantra 1/25, In Sharma PV. Sushruta Samhita (with English translation of text and Dalhan's commentary along with critical notes) Vol II, Reprint edition, Varanasi, Chaukhambha Visvabharti, 2005.
13. Yogaratnakara Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Nidana Sthana, chapter 6, verse no.5. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (17): 217.
14. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Nidana Sthana, chapter 6, verse no.6. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (18): 218.
15. Vaidya Jadavaji Trikamaji Acharya, editor. Sushruta Samhita of Sushruta with Nibandha Sangraha Comm. Of Shri Dalhanacharya, Nidana Sthana, chapter 41, verse no 9, Chaukhambha Orientalia, Varanasi, reprinted, edition, 2008; (19): 712.
16. Vaidya Jadavaji Trikamaji Acharya, editor. Sushruta Samhita of Sushruta with Nibandha Sangraha Comm. Of Shri Dalhanacharya, Nidana Sthana, chapter 41, verse no 10, Chaukhambha Orientalia, Varanasi, reprinted, edition, 2008; (20): 712.
17. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Nidana Sthana, chapter 6, verse no.10. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (21): 218.
18. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Nidana Sthana, chapter 8, verse no. 17-19. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (22): 227.
19. Charak A. In: Shastri K, Chaturvedi GN, Vidyatini Hindi Commentary, editors. Charak Samhita. Part I and II. Varanasi: Chaukhambha Sanskrit Series, 1969.
20. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Chikitsa Sthana, chapter 8, verse no. 39-40. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (23): 461.
21. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Chikitsa Sthana, chapter 15, verse no.4. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (24): 512.
22. K.R. Srikantha Murthy, editor. Astanga Sangraha Nidana Sthana, chapter 5, verse no 7 Chaukhambha Orientalia, Varanasi, Voll.I reprint edition, 2012; (25): 169.
23. Brahmananda Tripathi, editor. Madhavanidanam of Sri Madhavakara with the Sanskrit Comm. Madukosa by Vijayaraksita and Srikanthdatta, chapter 10, verse no.2 Vol- I Chaukhambha Surbharati Prakashan Varanasi, 2006; (26): 65.
24. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Nidana Sthana, chapter 6, verse no.4. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (28): 217.
25. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Nidana Sthana, chapter 6, verse no.6. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (29): 218.
26. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Nidana Sthana, chapter 6, verse no.8. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (30): 218.
27. Yadavaji Trikamaji, editor. Charaka Samhita of Charaka, Chikitsa Sthana, chapter 8, verse no.14-19. reprinted, Varanasi; Chowkhambha Sanskrit Series, 2008; (31): 459.