



RE-EVALUATION OF THE CONCEPT OF MICROBES AND PARASITES IN AYURVEDA- A STUDY PROTOCOL

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ABSTRACT The *Vedic Rishis* were well aware of the Germ theory and they even recorded it in the *Vedas*. In fact, *Vedas* are the first text in the world to record nexus between microbes and diseases. *Rigveda*, *Yajurveda* & *Atharvaveda* followed by *Ayurveda* provide rich insight into microbial sciences that existed in India many thousands of years ago. Modern microbiology began when people learned to grind lenses from pieces of glass and combine them to produce magnification power greater enough to enable microbes to be seen. The Germ theory of disease was thus proposed by Robert Koch, Louis Pasteur and propounded by De Bary. Thus began the golden period of microbiology in western hemisphere. But the rich knowledge of *Vedas* was lost somehow and very few researches were conducted so far to explore any possible relationship between *krimi* and microbes or parasites. In the present scenario when the world is struggling daily with various new contagious diseases it has now become imperative to throw light on the above subject.

KEYWORDS : *Vedas*, *krimi*, microbes, parasites, worms.

INTRODUCTION:

Since ancient times microorganisms have fascinated human beings. Modern microbiology began when people learned to grind lenses from pieces of glass and combine them to produce magnification power greater enough to enable microbes to be seen. The Germ theory of disease was thus proposed by Robert Koch, Louis Pasteur and propounded by De Bary. "The central dogma of the germ theory is that each particular type of fermentation or disease is caused by specific a kind of microbe" (Dubos, 1998)¹. The advent of germ theory started the golden period of microbiology in western hemisphere.

But in reality, the *Vedic Rishis* were well aware of the Germ theory and they even recorded it in *Vedas*. In fact, *Vedas* are the first text in the world to record nexus between microbes and diseases. *Rigveda*, *Yajurveda* & *Atharvaveda* followed by *Ayurveda* provide rich insight into microbial sciences that existed in India many thousands of years ago. Detailed description of *krimi* is available in *Atharvaveda* where the existence of *krimi* is mentioned in trees, water, mountains and in living being which cause various diseases (A. V. 2/31/5)². In other words, we can say that presence of bacteria & parasites in environment has been mentioned very clearly in *Atharvaveda*. Various synonyms are used to denote *krimi* like *Rakshasa*, *Pishacha*, *Yatu*, *Yatvdhana*, *Krimidi*, *Gandharva*, *Apsara* (A. V. 5/29/6)³. *Atharvaveda* not only tells us about visible *krimi* but also alleged the existence of invisible *krimi* (A. V. 5/23/7)⁴. Classification of external and internal *krimi* and differentiation in male and female is also available (A. V. 5/23/8)⁵. These descriptions clearly establish the richness of the knowledge we inherit from our *Rishis* in the form of *Vedas*.

Further descriptions about the classification, pathogenesis and treatment of *krimi Roga* have been done by various *Acharyas* from time to time. *Susruta Samhita*, one of the prime sources for *Ayurvedic* clinical medicine denotes about *krimi* in its *Uttara tantra* under the title of "*Krimiroga pratishedha*" as follows "There are 13 varieties of *krimi* which are visible, rest are invisible" (S. U. 54/19)⁶. The visible varieties are explained as *Sthula krimi* and can be noted as infesting parasites such as worms, lice, ticks etc. The invisible organisms can be compared to microorganism such as virus, bacteria, fungi or protozoa etc which were texted as *Sukshma krimi*. In this clinical chapter *Acharya Susruta* clearly described all clinical manifestations and treatment of *krimi rogas*.

Moreover, *Acharya Sushruta* has described the term "*Aupasargika Rogas*" in *Nidansthan* chapter 5 for the communicable diseases. *Kushtha* (skin diseases), *jwara* (fever), *shosha* (emaciation) and *netrabhishayanda* (conjunctivitis) are quoted as examples of *Aupasargika Rogas*. These *auapsargika rogas* explains the contagious nature of the disease and provides a firm basis on which we can say that *Ayurveda* physicians and surgeons were very well aware about the involvement of bacteria and viruses in major diseases. Various modes

have also been mentioned for transmission from one person to another which includes *Gayatrasansparshat* (physical contact), *Sahashaiyasana* (sharing bedding), *Nihsvasat* (exhaled air), *Saha Bhojnat* (sharing of food in same plate) and *Vastramalyamulepanat* (sharing of clothes & garland)⁷.

Charaka Samhita is the main treatise of the *Samhita* period. In the 19th chapter of *Sutra sthana* "*Ashtodariya Adhyaya*" total 20 *Krimis* are mentioned which are classified into *Bahya krimi* like *Yuka* and *Pipilika* and *Abhyantara Krimi* as *Pureeshaja*, *Kaphaja*, and *Raktaja*⁸. Later in 7th chapter of *Vimana sthana*, "*Vyadharupiya Vimana*" *Krimiroga* is described in detail with respect to its management⁹.

Acharya Charaka has also dedicated a complete chapter on pandemics i.e., *Janapadodwansa roga* (C. V. 3/6)¹⁰. Here the term *janapada* means a population or settlement and *udwansa* means elimination or destroy. *Acharya Charaka* has clearly mentioned two main reasons for such epidemics which are,

1. Inequality of human composition (including body constitution, spirits and desires)
2. Derangement of global indicators (*Bhava*) such as air, water, land and time. *Acharya Charaka* further elaborates three types of epidemics that may occur:
 1. *Shastraja janapadodwansa* (by weapons) - death of masses due to war.
 2. *Bhutasanghaja* (by *rakshoghna*/germs) - Here the term *bhuta* refers an existing but unidentified object. Probably a germ or contagious pathogen such as a virus, bacteria or fungus etc.
 3. *Abhishapaja* (by a curse followed by) - These curses may be inflicted by sages, Gods or *Brahma*. Least influenced type of epidemic as the affected number would be 1 or a few.

Before planning the study, previous research works done regarding *krimi* were searched in various research databases and indexed journals. It was observed that most of the studies were dedicated to evaluate the efficacy of the effect of herbal, mineral or herbomineral drug preparations on certain parasite or protozoan or *krimi* rather than understanding the concept of *krimi*. Some research workers had tried to correlate *krimi* with few parasites only. Keeping in view the above facts, this study has been planned on *krimi* to understand the overall concept of *krimi* and to view microbiology and parasitology from *Ayurvedic* perspective. Moreover, in the present scenario when the world is struggling daily with various new contagious diseases like COVID-19, it has now become imperative to throw light on the above subject.

AIMS:

1. To review, analyse and systematically compile the literature on *krimi*.
2. To study and understand the concept of parasitology from

ayurvedic perspective.

3. To study and understand the concept of microbiology from *ayurvedic* perspective.

OBJECTIVE:

There is a need to study and understand the concept of microbiology and parasitology from *ayurvedic* perspective and to review, analyse and systematically compile the literature on *krimi*.

MATERIALS AND METHODS:

Study design: Descriptive/Conceptual study

This descriptive study will be conducted at Rishikul Campus, Uttarakhand Ayurved University, Haridwar.

Source of data:

Literary review about *krimi*, their synonyms, classifications and pathogenesis will be done from ancient *Vedic* and *Ayurvedic* literature like *Nirukt*, *Amarakosh*, *Vachaspathyam*, *Shabdakalpadruma*, *Girvan Laghukosh*, *Apte Dictionary*, *Ayurvedeeya Shabdakosh*, *Rigveda*, *Atharvaveda*, *Charak Samhita*, *Sushrut Samhita*, *Ashtanga Hrudaya*, *Ashtanga Samgraha* and *Harita Samhita*. Books available on microbiology and parasitology, research journals and all relevant internet source will be searched for relevant data. Data will be collected manually by studying and analysing the literature available on *krimi*, microbes and parasites.

OBSERVATION AND RESULT:

The observation and result will be based on critical analysis of data gathered.

DISCUSSION:

Concept of *krimi* and *krimi roga* is available since Vedic period, but detailed description is found in *Samhita* period along with three-fold treatment of *krimiroga*. Modern microbiology is a well flourished science. Details and data collected will be analyzed to figure out any possible association between ayurvedic *krimi* and contemporary microbes and parasites.

SUMMARY AND CONCLUSION:

Conclusion will be drawn on the basis of result and discussion.

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