
Ayurvedic Antimicrobials – A Novel Concept on Ancient Guidelines

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ABSTRACT

Microorganisms are one of the oldest companions of the human beings since ancient times. Their evolution has also led to emergence of many novel strains that cause dreadful diseases in mankind. Antimicrobial is an arena of constant research and the need for new agents is persistent due to resistance from microbial world. Ayurveda an age-old science offers the treasure chest of medicines for maintaining good health. In Ayurveda many references highlight the correlation of microorganisms to krimis & other entities and indirectly suggest evidence of their existence. Ayurveda provides the required 'person specific approach' that caters the health need of every individual. While treating infections as per Ayurveda, dravyas with actions(karmas) like Krimighna, Krimihara, Vishaghna, Deepan, Pachan need to be studied, defined ad implemented.

Keywords: *Krimi, Microorganisms, Ayurveda, Antimicrobials.*

INTRODUCTION

The microorganisms were observed through primitive microscopes, as early as the late 1600s. However, the science of microbiology is barely 150 years old. All these years there is a development in the knowledge of microbial physiology ecology, and systematics. There is constant evolution in microbial world, new resistant strains are arising with highly infectious forms as recent as novel corona virus infection. This has not only given rise to need of discovering new antimicrobial agents but also to discover alternative therapies and approaches in combating 'infections. Ayurveda is one of the Health systems in Indian Traditional Medicine as old as 5000 yrs. It works on principle that disturbance in the balance of Tridoshas (Three humors namely- Vata, Pitta & Kapha) is responsible for causation of disease. This imbalance can be result of certain causative factors- Internal (Nija hetu) or External (Agantuja Hetu). The term agantuja implies 'external factors' in broad spectrum which include trauma (external), krimi (parasite) etc.

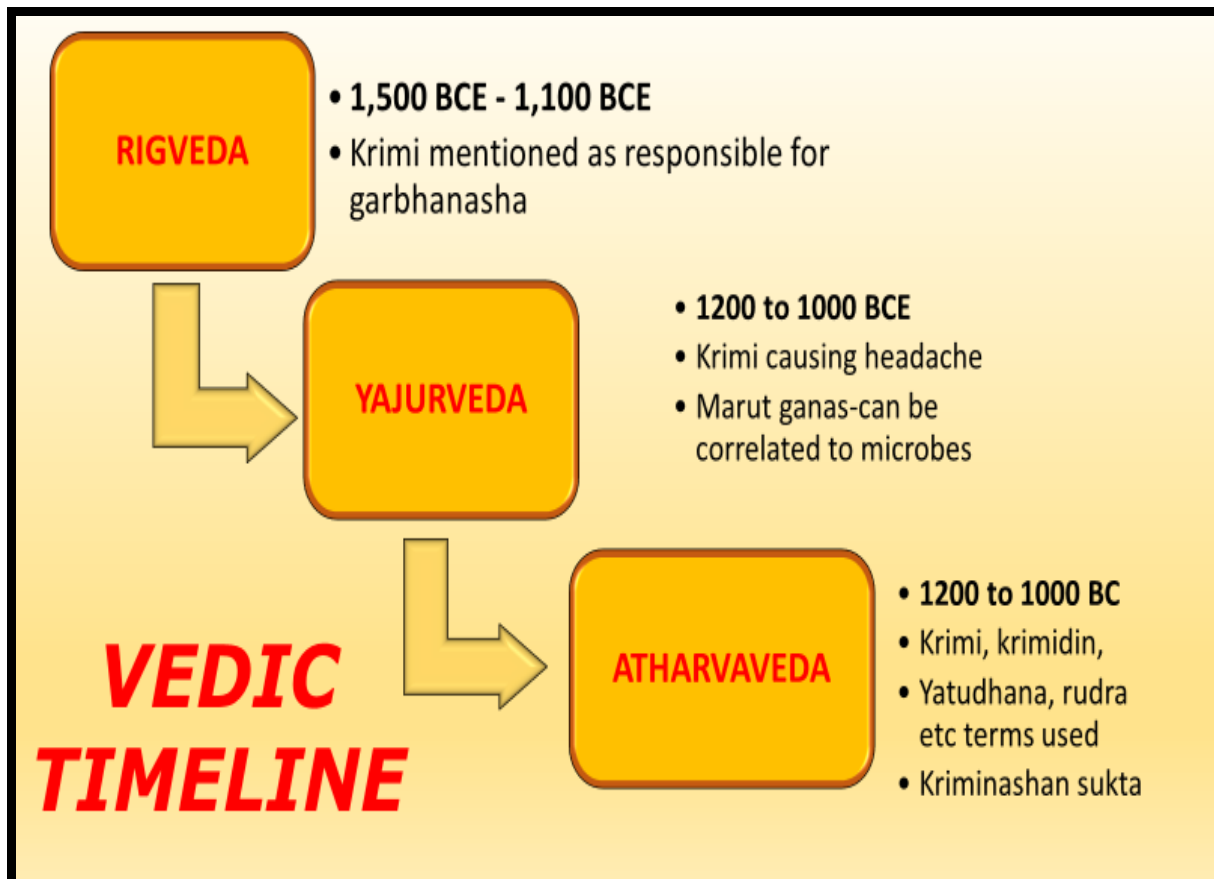
Ayurvedic approach to Microorganisms and Infection

Krimi is a broad term that includes parasites, bugs, worms and microorganisms too. Though it is very difficult to judge or directly correlate between adrsya (invisible) krimis and microorganisms, few references throw light on their correlation.

Vedic View

Yajurveda describes krimi causing diseases & refers to development of disease by krimi present in utensils after eating food. It also mentions about 'Marut devatas' referred to as 'marut ganas (as they are infinite in number)' and are responsible for proper functioning of universe but cause diseases if angered. Atharvaveda states that the krimis can originate, from plants, water, earth and forest, they enter into human body and produces diseases. It also

mentions krimi of two types- drishta (those visible to naked eyes) and adrishta (invisible forms). Word *krimi* has been mentioned by many synonyms in *Atharvaveda* like ‘*Rudra*’ is the most dangerous form causing diseases in human beings. It also speaks about living forms like *yatudhana*, *krimidin*, *krimi* as cause of disease and emphasizes on way to deal with them by plant-based drugs. It also suggests *krimi* as a cause of leprosy.



Classical View

Acharya Charaka has dedicated an adhyaya in *vimanasthana* to *Janapadodhwansa* that describes about epidemics. According to him, *adharm* (bad conduct), *apavithra acharana* (unhygiene) leads to “*prakopa*” of *Rakshoganas* that further leads to *janapadodhwansa*. He has also described origin of *krimi* from *kleda*. *Raktaj krimi* are mentioned *sukshma* and *anu* by him.

Acharya *Sushruta* has mentioned *krimi* as one factor along with *tridosha* as causative factor for all types of *kushtha*.

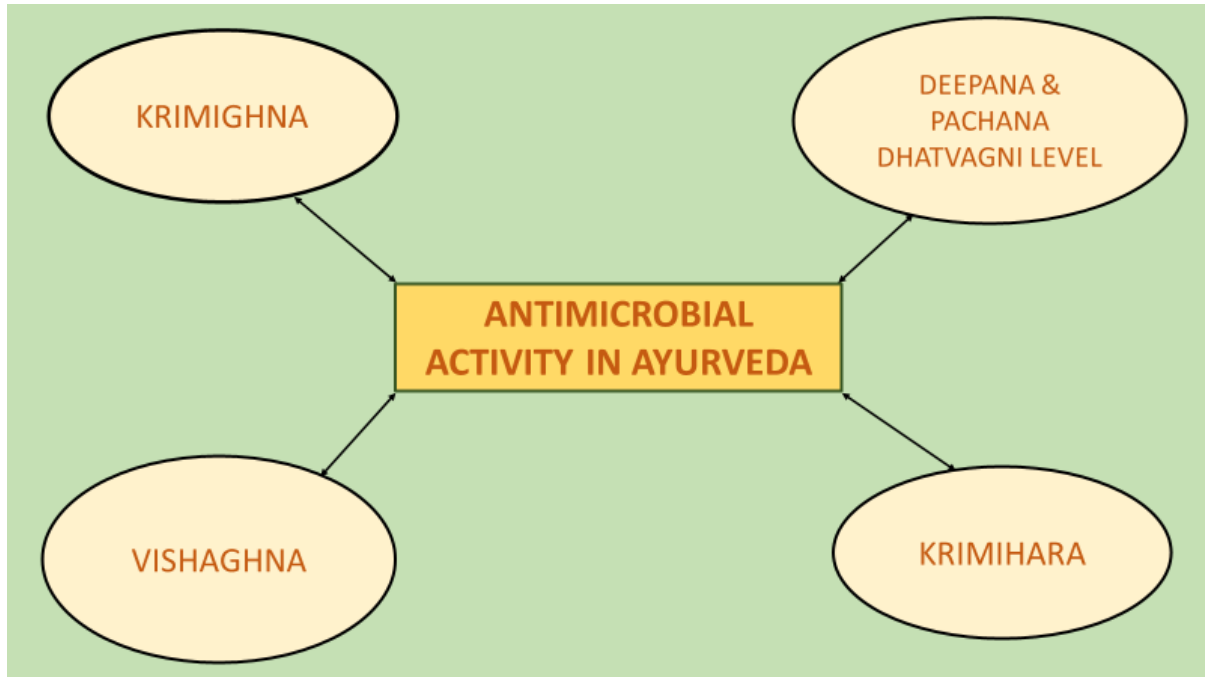
Ashtangahridaya states that *raktaja krimis* are *adrsya* (invisible to naked eye).

We can correlate maximum terms of *Ayurveda* like- *Krimi*, *Graha*, *Rakshas*, *Bhutas* etc with these microscopic entities.

Selection of Dravya for Treating Infectious Disease as per Ayurveda

Ayurveda considers every individual different with different constitution and different aetiopathogenesis in them. *Samprapti* (Pathophysiology) differs in individuals with same disease with respect to *hetus*, *doshas*, *sthana* etc.

Various actions need to be thought upon, when we consider antimicrobial activity in Ayurveda. It is important to select dravya for Antimicrobial action considering-Type of infection, involvement of dosha, type of dushya, strotasa affected, Organ involved and Samprapti occurred in individual. Dravyas and procedures mentioned as krimighna can be implemented in the management of infections. Apakarsana, prakritivighata and nidana-parivarjana are the principles of treatment mentioned in krimi chikitsa.



a) Prakriti vighata

krimi have their origin from kleda (Ref ch.su 17). They have an underlying kapha dosha involvement in their samprapti. Krimi chikitsa highlights the use of Tikta, katu rasatmaka dravyas in prakriti vighata of krimis.

b) Ashaya-apakarshan

It means actual removal of the krimis (agantuka doshas) from the place it infects. *Dravyas* having attributes like Ushna, Teeksa, Sara, Ruksha may be used for achieving this action. It can also be achieved by various purification(shodhan) procedures like vaman, virechan etc.

c) Vishaghna karma

We come across vishaghna mahakashaya in charak Samhita. Visha is again a broad term. Bacterial endotoxins can be considered as visha to some extent and dravyas having vishaghna properties could be implemented in the treatment of infections.

d) Deepana and Pachana karma

This specifically means the ‘ama’ *pachana karma*. *Kleda* is the origin of *krimis*. It is also known as the *ama* formed at the dhatu level due to *dhatvagnimandya*. The treatment should aim at two levels-

To treat dhatvagnimandya- deepana.

To remove kleda(dhatugata ama)- pachana.

Dravyas having these two properties should be wisely selected while implementing them as antimicrobials.

DISCUSSION

Today we have understood the key role of person specific immunity along with virulence of the infectious agent while treating the emerging infectious diseases. Ayurveda provides the required 'person specific approach' that caters the health need of every individual, while treating infections. If we correlate microorganisms to Krimi, then can Antimicrobial activity be correlated to krimighna karma? But that is where the pharmacology of Ayurveda differs from that of modern science. Krimis can be correlated to the bacterial & fungal infections. We need to consider many other karmas besides krimighna karma while studying antimicrobial activity like kandughna, kushthaghna, rakshoghna, grahanashana, kasahara, etc. Just like there are anukta vyadhis, there are anukta karmas in Ayurveda. One such karma or activity is antimicrobial activity. Anukta vyadhis are treated on the basis of doshas, anukta dravyas are assessed on the basis of their actions seen. As per my opinion anukta karmas should be assessed on the doshas and interpreted on the basis of yukti pramana.

In treating infections, based on principles discussed before, dravyas with following actions may be implemented after assessment of the patient-

- 1) **Krimighna**- Dravyas having Tikta, Katu rasa, Ruksha gunas eg- Nimba, Vidanga etc
- 2) **Krimihara**- All shodhan dravyas with tikta, katu rasas, Sara, tikshna gunas eg- Shigru, Kantakari etc
- 3) **Deepan & Pachan at dhatvagni level**- For agnimandya and ama present in the aetiopathogenesis of infections, dravyas having deepana and pachana property may be implemented. Eg- Chitraka, Guduchi etc.
- 4) **Vishaghna**- Dravyas that have vishahara (i.e toxin neutralizing) action can be implemented. Here the dravyas having raktashodhak and raktaprasadak properties can also be included. eg- Shirish, Sariva.

CONCLUSION

There is no need to define anukta karma or anukta as per Ayurveda. The dravyas have their swabhava, and other attributes which should be wisely thought by the vaidyas while implementing any treatment based on doshas involved and affected in any disease. As per my opinion, Ayurvedic dravyas can be implemented successfully as antimicrobials by application of logic (yukti pramana) and on the basis of ayurvedic fundamentals.

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