



"Ayurveda's Hidden Allies: A Fresh Look at Krimi and Its Therapeutic Strategies"

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ABSTRACT :

Krimi in Ayurveda is a broad term that encompasses both worms and microscopic organisms, which, from the perspective of modern science, can be correlated with helminths and microorganisms, including bacteria, viruses, protozoa, and fungi. During the *Samhita* period, Ayurvedic scholars provided a detailed account of *Nidana* (causative factors), *Bheda* (classification), *Lakshana* (clinical features), and *Chikitsa* (management) of *Krimi*. These classical descriptions reflect a profound understanding of pathogenic entities long before the advent of microbiology.

In contrast, modern science has established distinct disciplines such as microbiology and helminthology to study these organisms. However, the Ayurvedic concept of *Krimi* unites these diverse entities under a holistic framework that includes both external and internal parasites. Various *Acharyas* have classified *Krimi* based on origin, site of manifestation, symptoms, and treatment principles, which bear significant parallels to modern classifications of infectious and parasitic diseases.

This review explores the Ayurvedic understanding of *Krimi* and its relevance in the context of contemporary parasitology and microbial science, highlighting the timeless applicability of Ayurvedic insights in understanding infectious pathologies.

Keywords: *Krimi*, Ayurveda, *Samhita* period, microbiology, helminthology, parasites, infectious diseases

Introduction

Ayurveda, the ancient healing system of India, offers a unique way of understanding not just the human body and mind, but also the invisible organisms that influence our health. Long before microscopes were invented or modern microbiology was born, Ayurvedic scholars had already described disease-causing entities called *Krimi*. This term, although often translated simply as "worms," actually refers to a wide range of living organisms some that are visible, and many that are not. In today's language, *Krimi* could refer to parasites, bacteria, viruses, and even other microscopic organisms. What's remarkable is how intuitively and systematically Ayurveda approached these tiny troublemakers.

The idea of *Krimi* isn't just limited to one text or era; it has roots in the ancient Vedas, especially the *Atharvaveda*, where references are made to harmful creatures present in water, soil, plants, animals, and even within the human body.¹ These early descriptions hint at an understanding of infectious diseases and environmental health that is surprisingly ahead of its time. While modern science often separates microorganisms into different categories like bacteria, viruses, fungi, and helminths, Ayurveda viewed them as a collective force that could disturb the body's balance.

The term *Krimi* is defined in *Shabdakalpadruma*² as "*Bhrame Samprasaraṇe Cha*," indicating organisms that move using limbs or legs (*podia*). Vedic literature describes various natural sources of *Krimi*, including mountains (*Parvata*), forests (*Vana*), medicinal plants (*Oushadhi*), animals (*Pashu*), and aquatic environments (*Apshu*).³ Linguistically, the word *Krimi* is derived from the root "*Kunja Himsayam*", which implies causing harm or destruction. Ayurvedic texts like *Charaka Samhita* and *Sushruta Samhita* go further to divide *Krimi* into those that can be seen (*Drishya*) and those that are invisible (*Adrishta*), a classification that hints at microbial life long before such things were seen under a lens.

Classical Ayurvedic physicians didn't stop at naming and classifying *Krimi*; they also described how they enter the body, how they behave, and most importantly, how they can be treated. They recognized that some *Krimi* live in the digestive tract, some in the blood, and others on the skin. Some are

harmless cohabitants, but others, when conditions are right, can become harmful. The causative factors of *Krimi*, both external (*Bahya Krimi*) and internal (*Abhyantara Krimi*), are outlined in Ayurvedic texts. External *Krimi* are primarily produced due to unhygienic and dirty habits, referred to as “*Mrija Barjana*,” which involve neglecting proper cleanliness and hygiene, making individuals susceptible to infections by parasites or pests. Internal *Krimi*, on the other hand, arise due to a variety of dietary and lifestyle factors. Common etiological factors for *Abhyantara Krimi* include Ajeernabhojana (consumption of improperly digested food), regular intake of *Madhura* (sweet) and *Amla* (sour) Rasa, which can disturb the digestive process, and excessive consumption of *Drava* substances (watery foods), which weaken the digestive fire (*Agni*). Other contributing factors include *Guda* (rich and fatty foods) and *Virudha Bhojana* (incompatible food combinations), which lead to digestive disturbances and promote the growth of harmful microorganisms. Additionally, some physical factors such as *Divaswapna* (daytime sleep), which disrupts the natural bodily rhythms, and *Avyayama* (lack of exercise), which leads to sluggish digestion, also contribute to the formation and proliferation of *Krimi*. Therefore, maintaining proper dietary habits, hygiene, and physical activity is essential to prevent *Krimi* infestation and maintain overall health.

Table 1.1: Numbers of *Bahya* and *Abhyantara Krimi* as mentioned in different classics⁴

S.N.	Name of the text	<i>Bahya Krimi</i>	<i>Abhyantara Krimi</i>				Total No. of <i>Krimi</i> Total no. of <i>krimis</i>
			<i>Kaphaja</i>	<i>ra Raktaja</i>	<i>Purishaja</i>	<i>Shlesmaraktaja</i>	
1.	<i>Charak samhita</i> ⁴	2	7	6	5	-	20
2.	<i>Sushruta Samhita</i> ⁵	-	6	7	6	-	20
3.	<i>vagbhatta</i>	2	7	6	5	-	20
4.	<i>Harita Samhita</i>	7	6	-	-	-	13
5.	<i>Madhav nidan</i>	2	7	6	5	-	20
6.	<i>Sharangdhara</i> ⁶	2	7	6	5	1	21
7.	<i>Bhava Prakash</i> ⁷	2	7	6	5	-	20

Table 1.2 Names of *Bahya* and *Abhyantara Krimi* as mentioned in different classics

Sr. No.	<i>Charaka</i>	<i>Sushruta</i>	<i>Vagbhatta</i>	<i>Harita</i>
A. BAHYA				
1	<i>Yuka</i>	-	-	<i>Krishna (yuka)</i>
2	<i>Pipilika</i>	-	-	<i>Leeksha (Sweta)</i>
3	-	-	-	<i>Charmdi</i>
4	-	-	-	<i>Charmyukika</i>
5	-	-	-	<i>Binduki</i>
6	-	-	-	<i>Vartula</i>
7	-	-	-	<i>Matkuna</i>
B. ABHYANTARA				
<i>Shleshmaja Krimi</i>				
1	<i>Antrada</i>	<i>Dhanyankuranibha</i>	<i>Antrada</i>	<i>Dhanyankuranibha</i>
2	<i>Hridayada</i>	<i>Suchimukha</i>	<i>Hridayada</i>	<i>Suchimukha</i>
3	<i>Udarad</i>	<i>Chipita</i>	<i>Udaravestha</i>	<i>Kinchuksannibha</i>
4	<i>Churu</i>	<i>Pipilika</i>	<i>Kuru (Churu)</i>	<i>Anawah</i>
5	<i>Mahaguda</i>	<i>Daruna</i>	<i>Mahakuha</i>	<i>Sukshmah</i>
6	<i>Saugandhika</i>	<i>Darbhapushpa</i>	<i>Sugandha</i>	-
7	<i>Darbhakushma</i>	-	<i>Darbhakusuma</i>	-
<i>Purishaja Krimi</i>				
1	<i>Kakeruka</i>	<i>Ajwa</i>	<i>Kakeruka</i>	-
2	<i>Makeruka</i>	<i>Vijya</i>	<i>Makeruka</i>	-
3	<i>Sausurada</i>	<i>Kipya</i>	<i>Sausurada</i>	-

4	<i>Sasulaka</i>	<i>Chipya</i>	<i>Saluna</i>	-
5	<i>Leliha</i>	<i>Gandupad</i>	<i>Leliha</i>	-
6	-	<i>Churu</i>	-	-
7	-	<i>Dvimukha</i>	-	-
<i>Raktaja Krimi</i>				
1	<i>Keshad</i>	<i>Keshada</i>	<i>Keshada</i>	-
2	<i>Lomada</i>	<i>Romada</i>	<i>Lomavidhvansa</i>	-
3	<i>Lomadwipa</i>	<i>Nakhad</i>	<i>Lomadwipa</i>	-
4	<i>Saurasa</i>	<i>Dantada</i>	<i>Udumbara</i>	-
5	<i>Udumbara</i>	<i>Kikkisha</i>	<i>Saurasa</i>	-
6	<i>Jantumataara</i>	<i>Kushthaja</i>	<i>Matraha</i>	-
7	-	<i>Parisarpaja</i>	-	-

Table 1.3: Explanation of *Krimis* according to their name⁸

Name of Krimi	Explanation
<i>Antrada</i>	Worms that eat the intestines or produce ulceration in the lower bowels.
<i>Udaravestha</i>	Large worms that occupy and cover the entire abdomen or intestinal tract.
<i>Chipita</i>	Plate-like worms (flat in shape).
<i>Hridayada</i>	Worms that lick or affect the heart.
<i>Hridayachara</i>	Worms that pass through or migrate via the heart.
<i>Churuvo / Churu</i>	Worms that produce sound.
<i>Darbhapushpa / Darbhakushuma</i>	Worms resembling the flower of <i>darbha</i> grass in appearance.
<i>Mahapushpa</i>	Worms shaped like large flowers.
<i>Saugandhika / Sugandha</i>	Worms that produce a peculiar or distinctive smell.
<i>Mahaguda</i>	Worms with a large anus or a fully developed gastrointestinal tract.
<i>Praluna</i>	Worms that break into pieces, resembling clusters of <i>Taenia</i> (tapeworm segments).
<i>Pipilika</i>	Worms resembling ants in shape and size.
<i>Daruna</i>	Hard or rough worms that cause pain and discomfort.
<i>Makeruka</i>	Worms with rough ridges on the dorsal surface, similar to a crocodile.
<i>Leliha</i>	Worms with snake-like, flickering tongue movements.
<i>Sashulaka</i>	Worms that cause pain.
<i>Sausurada</i>	Worms that cause fermentation in the gut and thrive on it.
<i>Gandupada</i>	Worms resembling earthworms.
<i>Dvimukha</i>	Worms with a mouth or mouth-like structure at both ends.
<i>Ajava</i>	Worms that lack segmentation.
<i>Vijava</i>	Worms that have segmented bodies.
<i>Prathumunda</i>	Worms with a broad and flat head.
<i>Kanchukasannibha</i>	Worms similar in appearance to earthworms.
<i>Dhanyankura</i>	Worms resembling fresh paddy sprouts.

<i>Suchimukha</i>	Worms with a pointed, needle-like mouth.
<i>Sukshma</i>	Very small-sized worms.
<i>Anvaha</i>	The smallest of all worms.

Table1.4 Symptoms mentioned in different classics

Sr. No.	Symptoms	Su. S.10	M.N.11	B.P.12	H.S.13	Y.R.14
1	<i>Jwara</i> (Fever)	+	+	+	+	+
2	<i>Vivarnata</i> (Depigmentation)	+	+	+	+	+
3	<i>Shoola</i> (Pain)	+	+	+	+	+
4	<i>Hridroga</i> (Heart trouble)	+	+	+	+	+
5	<i>Bhrama</i> (Vertigo)	+	+	+	+	+
6	<i>Bhaktadwesha</i> (Anorexia)	+	+	+	+	+
7	<i>Atisara</i> (Diarrhoea)	+	+	+	+	+
8	<i>Sadana</i> (Malaise)	+	+	+	-	-
9	<i>Chhardi</i> (Vomiting)	-	-	-	-	+
10	<i>Swasa</i> (Dyspnoea)	-	-	-	-	-
11	<i>Vami</i>	-	-	-	+	-
12	<i>Jathara Garjanam</i>	-	-	-	+	-
13	<i>Mandagni</i> (Poor Digestion)	-	-	-	+	-
14	<i>Pipasa</i> (Thirst)	-	-	-	+	-
15	<i>Pitanetra</i> (Jaundice)	-	-	-	+	-

This concept resonates with what we now know about the microbiome and opportunistic infections. Ayurveda's three-pronged treatment approach expelling the organisms (*Apakarshana*), disrupting their favorable conditions (*Prakriti Vighata*), and removing the cause (*Nidana Parivarjana*) matches well with modern principles of infection control and prevention.

TREATMENT OF KRIMI¹⁵

Acharya Charaka described three basic methods for the treatment of *Koshtagata Krimi* (intestinal parasitic infestations) as follows:

1. *Apakarshana* (Removal through *Vamanadi Panchakarma* procedures)
2. *Prakritivighata* (Breaking the pathogenesis)
3. *Nidana Parivarjana* (Avoidance of causative factors)

1. *APAKARSANA*

The term *Apakarshana* means to forcefully eliminate or scratch out the *dosha*, *mala*, and *krimi* (parasites) from the body. This process involves the removal of unwanted components, both manually and instrumentally, depending on the specific type of parasite or its location.

Apakarshana of Bahya Krimi (external parasites) involves manual methods such as *scraping*, *squeezing*, or *surgical interventions*.

Apakarshana of Abhyantara Krimi (internal parasites) is done by elimination techniques like *Vamana* and *Virechana*, which help to expel the parasites from the body.

Methods for *Apakarshana* include:

(i) *Vamana*:

This is a *purgation therapy* aimed at eliminating *vitiated doshas* (imbalanced humors), specifically *Kapha dosha*, through the upper part of the gastrointestinal tract. The *Amashaya* (stomach) is the site for *Kapha* production, and when this *dosha* is aggravated, it leads to the creation of *Kaphaja Vikara* (*Kapha*-related disorders) and *Kaphaja Krimi* (*Kapha*-related parasites). *Vamana* therapy is used to eliminate both the *vitiated doshas* and the *Kaphaja Krimi* through vomiting.

(ii) *Virechana*:

This is a *purgative therapy* that expels *vitiated doshas* through the *lower gastrointestinal tract* (intestines). Drugs used in *Virechana* should be both *krimighna* (parasite-killing) and *purgative*, helping to either *kill* the parasites or *anaesthetize* them, making them lose their consciousness. The *peristaltic movements* of the intestine then help in eliminating the parasites. This therapy is especially effective for treating *intestinal worm infestations*.

(iii) *Shirovirechana*:

This is a *head purification therapy* in which *doshas* located in the head, particularly in the *sinus*, are eliminated through the *nose*. It involves the use of drugs with *katu* (pungent), *tikta* (bitter) rasa, and *ushna* (hot) guna, which work on the *nasal mucosa*. This helps stimulate the nerve endings in the nasal passages, leading to the secretion of *vitiated matter* and *krimis* (parasites). These are expelled through the nose, cleansing the head and sinus areas. This technique is especially useful for *krimi* (parasites) that are localized in the *sinuses*.

(iv) *Asthapana Basti*

Asthapana Basti is a technique aimed at eliminating *Krimi* (parasites) from the large intestine. The active medicinal ingredients in *Asthapana Basti* reach the site of infestation directly, acting on the *krimi* residing there. *Basti* is categorized into three types:

1. *Anuvasana Basti*
2. *Asthapana Basti*
3. *Uttara Basti*

Acharya Charaka has emphasized the importance of *Asthapana Basti* for treating *Krimi* over *Anuvasana Basti*. This is because *Anuvasana Basti* uses oleative (oily) preparations that tend to favor the growth of parasites, whereas *Asthapana Basti* uses *Kashaya Dravya* (astringent herbs) that have the *Karshan Guna* (absorptive property), which helps inhibit the growth and activity of parasites.

(2) PRAKRITI VIGHATA

The term *Prakriti Vighata* refers to destroying the environment that supports the formation and growth of the *Krimi*. While *Samshodhan Chikitsa* (detoxification therapy) removes the *doshas*, mala, and *Krimi* from the body, without altering the underlying *Prakriti* (nature) of these parasites, recurrence of the disease is likely.

Prakriti Vighata involves using substances with *Katu*, *Tikta*, *Kasaya*, and *Ushna Guna* (pungent, bitter, astringent, and hot qualities) to disrupt the environment that sustains the growth of *Krimi*. *Kapha* and *Purisha* (intestinal contents) are the primary substrates for *Krimi* formation. Therefore, *Acharya Charaka* recommends using herbs that counteract the *Kapha* and *Purisha* to destroy the favorable environment for the parasites.

(3) NIDANA PARIVARJANA

Nidana Parivarjana refers to the elimination of the causative factors (*Nidana*) that promote the germination and growth of *Krimi*. This principle underscores the importance of *Ahara* (diet), *Vihara* (lifestyle), and overall conduct in preventing and managing parasitic infections. The causative factors that should be avoided include:

Kaphavardhaka Ahara (diet that increases *Kapha*), such as *Madhura* (sweet), *Snigdha* (unctuous), *Guda* (jaggery), *Dahi* (yogurt), and *Dugdha* (milk). *Mithya Vihara* (improper lifestyle), such as *Divashayana* (daytime sleep), which are considered conducive to the formation and growth of *Krimi*.

DISCUSSION

The concept of *Krimi* in Ayurveda is expansive and multifaceted, encompassing a wide range of organisms including visible parasites (helminths) and invisible microbes such as protozoa, bacteria, and viruses. The Ayurvedic understanding of *Krimi Roga* has evolved from intuitive observations in the Vedic period to systematic, clinical elaborations in the Samhita period, as seen in treatises like *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya*. These texts offer detailed expositions on the types, etiopathogenesis, symptomatology, and therapeutic strategies for various types of *Krimi*.

Ayurveda classifies *Krimi* broadly into *Drishya Krimi* (visible to the naked eye) and *Adrishya Krimi* (invisible or microscopic). This classification is of immense significance, as it reflects an early conceptual distinction between macroscopic parasites, such as intestinal worms, and microscopic pathogens, which are comparable to the modern understanding of microbes. The *Adrishya Krimi* were recognized through *Anumana Pramana* (inference) based on clinical signs and symptoms such as itching, indigestion, emaciation, loss of appetite, abdominal pain, and behavioral changes, especially in children. The approach is strikingly similar to modern diagnostic principles where clinical symptomatology guides presumptive diagnosis in resource-limited settings.

The taxonomy of *Krimi* in Ayurvedic literature is further refined into categories such as *Raktaja Krimi* (blood-borne parasites), *Kaphaja Krimi* (those arising from vitiated *Kapha*), and *Purishaja Krimi* (those residing in the colon and formed due to improper digestion and fecal matter stagnation). The term *Adrashantor* used in the context of *Raktaja Krimi* indicates the Ayurvedic recognition of microorganisms or parasites that evade visual detection a concept highly consistent with modern microbiology and hematoparasitology.

The distinction becomes clinically relevant in current times, where intestinal helminthic infections such as ascariasis, enterobiasis, and hookworm infections can be likened to *Drishya Krimi*, while bacterial dysbiosis, protozoal infections (e.g., *Giardia*, *Entamoeba*), and viral enteropathies may be grouped under *Adrishya Krimi*. Further, the *Purishaja Krimi*, which is primarily formed due to vitiation of *Apana Vata*, improper dietary habits, and unhygienic conditions, closely corresponds to modern descriptions of intestinal microbial imbalances and parasitic infestations.

The ancient seers of Ayurveda also acknowledged the systemic impact of *Krimi*, particularly in vulnerable populations like children. Symptoms such as malnourishment, disturbed sleep, teeth grinding, perianal itching, and developmental delays are extensively described in Ayurvedic texts and bear strong resemblance to the clinical manifestations of parasitic infections in pediatrics as understood today. Moreover, psychological and behavioral disturbances associated with *Krimi Roga* point toward the Ayurvedic awareness of the gut-brain axis, a concept that has recently gained attention in modern integrative medicine.

Importantly, the approach of Ayurveda towards *Krimi Roga* is not merely symptomatic, but aims at complete eradication, prevention, and modulation of the host environment to resist reinfection. The *trividh chikitsa* or threefold management involving:

Apakarshana (elimination of parasites using Shodhana like Virechana and Basti),

Prakriti Vighata (modifying the internal milieu to make it inhospitable for parasites), and

Nidana Parivarjana (eliminating causative and predisposing factors) is a holistic protocol aligning with modern ideals of pathogen eradication, microbiome modulation, and hygiene-based prevention.

From a pharmacological standpoint, the *Krimighna Dravyas* mentioned in texts such as *Charaka Samhita Sutrashtana* 4/9, including *Vidanga* (*Embelia ribes*), *Musta* (*Cyperus rotundus*), *Ajamoda* (*Trachyspermum ammi*), and *Palasha* (*Butea monosperma*), exhibit proven antimicrobial,

anthelmintic, carminative, and gut-cleansing properties as per contemporary pharmacological research. This validates the ancient wisdom and opens avenues for integration into public health strategies for deworming, particularly in rural and under-resourced populations.

Moreover, the selection of *Basti* therapies such as *Shatprasritika Krimighna Basti* (medicated decoction enemas), particularly in the *Kala Basti* format, demonstrates the precise targeting of *Krimi* localized in the colon, a primary seat of *Purishaja Krimi*. The unique transrectal delivery mechanism ensures that the active ingredients bypass first-pass metabolism and directly affect the intestinal milieu. This local delivery of anti-parasitic agents is paralleled in modern practices like rectal administration of anti-helminthics or fecal microbiota transplantation (FMT) in certain cases of dysbiosis, showing the visionary outlook of Ayurveda.

Despite this rich and detailed framework, there are certain limitations and practical challenges in contemporary implementation. The lack of detailed morphological descriptions of individual *Krimi* species, absence of correlation with specific microbial pathogens, and difficulty in adhering to multi-step detoxification protocols (especially in pediatric cases) pose barriers to clinical acceptance. However, the foundational principles remain robust and adaptable to modern epidemiological needs when combined with diagnostic precision and evidence-based integration.

In essence, the Ayurvedic framework of *Krimi Roga* offers a deeply systemic, ecological, and preventive perspective, far beyond a superficial antimicrobial approach. Its emphasis on internal hygiene (*Antah Shuddhi*), immune modulation, and behavioral correction (*Achar Rasayana*) underlines a timeless and integrative model for the prevention and management of parasitic and microbial diseases, especially in the era of emerging antimicrobial resistance. What's even more interesting is that Ayurveda didn't always see these organisms as villains. Some were considered natural, even helpful, and were not to be disturbed. Today, we might recognize these as beneficial bacteria those that support digestion and immunity.

This review takes a closer look at the Ayurvedic concept of *Krimi*, tracing its origins in the Vedas and classical texts, and placing it side by side with our current understanding of microbiology and helminthology. By doing so, we hope to appreciate how deeply the ancient sages understood the unseen world, and how their insights might still inform our approach to health, hygiene, and disease in the modern age.

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