

KRIMI -AYURVEDIC AND MODERN VIEW

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ABSTRACT

Worm infestation is referred to as Krimi Roga in Ayurveda. Based on the place of origin, the Krimi can be classified as Kaphaj Krimi, Raktaj Krimi, or Pureeshaj Krimi. Pureeshaja Krimi in Ayurveda has similarities to helminthiasis. Content has been collected from a variety of sources, including original studies, recent books, web searches, and classical Ayurvedic literature. According to Ayurveda, Oupasargikarogas is the topic that addresses the infectious disorders carried on by krimi. The term "Krimi" refers to an enormous group of worms, both pathogenic and non-pathogenic. In this article effort has been made to describe the concept of Krimi from different Ayurvedic treatises and also describe in modern science

KEYWORDS: Krimi, types of Krimi, Helminthes, treatment.

INTRODUCTION

There are several types of worms that can exist inside the human body. The digestive system, particularly the intestines, is where the worms live and obtain their nourishment. There are several types of worms that can live inside the human body. The intestines, in particular, are where the worms live and feed. Worm infestation refers to the worms that live as parasites in the human body and are one of the main causes of diseases associated with health and nutrition problems beyond just gastrointestinal tract disturbances.^[1] Worm infestations impact more than 3.5 billion people worldwide, 400 million of them being children, and of whom 1.47 billion have round worms, 1.3 billion have hook worms, and 1.05 billion have whip worm^[2] The group with the largest worm load includes children aged 5 to 15 years, which is largely attributable to environmental pollution, inadequate sanitation, and poor hygiene.

Acharya Charaka divided Krimi into 20 varieties, belonging under the two major categories of Bahya and Abhyantara.^[3] He additionally suggested an approach of treatment for Krimiroga, including Apakarshana (extracting the krimi), Prakriti Vighata (destroying the environment that fosters the survival of the krimi), and Nidana Parivarjana (avoidance of the etiological factors responsible for the growth of the krimi), primarily through diet, medications, hygiene, and lifestyle management.^[4] This set of guidelines for the management of Krimiroga, where its approach is intended to prevent and eradicate intestinal worm infestations, is quite reasonable and simple to carry out. Many of these recommendations may be found in the Susruta Samhita, Kashyapa Samhita, Ashtanga Hridaya, Bhava Prakasha, etc.

Classification of Krimi on the basis of habitat (Worm infestation on the basis of Habitat)

The following table shows the total number and divisions of Krimi according to different Acharyas.

s.no	Charak	Harita	Vagbhatt	Sushruta
Bahya Krimi				
1	Yuka	Krishna	Yuka	
2	Pipilika	Sweta	Leeksha	
3		Charmyukika		
4		Binduki		
5		Vartuna		
6		Matkuna		
Abhayatar Krimi				
B. I- Shleshmaj Krimi				
1	Antrada		Antrada	Mahapushpa

2	Hridayada		Hridayada	Praloona
3	Udarad		Udaravestha	Chipita
4	Churu		Churu	Pipilika
5	Mahaguda		Mahakuha	Daruna
6	Saugandhika		Saugandha	-
7	Darbhakushma		Darbakusuma	Darbhapushpa
B.II- Pureeshaja Krimi				
1	Kakeruka	Prithumunda	Kakeruka	Ajwa
2	Makeruka	Dhanyankuranibha	Makeruka	Vijya
3	Sausurada	Suchimukha	Sausurada	Kipya
4	Sasulka		Saluna	Chipya
5	Leliha	Kinchuksannibha	Leliha	Gandupad
6		Anawah	-	Churu
7		Sukshmah	-	Dwimukha
B.III- Raktaja Krimi				
1	Keshad		Keshad	Keshad
2	Lomada		Lomavidwanca	Romada
3	Lomadwipa		Lomadwipa	Nakhad
4	Saurasa		Saurasa	Dantada
5	Udumbara		Udumbara	Kikkisha
6	Jantumata	-	Matraha	Kushthaja
7				Parisarpaja

Etiology of Krimi Production

Both Bahya and Abhyantara Krimi's etiological factors are mentioned in Samhitas. The "Mrija barjana" or dirty and filthy behaviours" are what cause the Bahya or external Krimi to develop.^[5] Some general and some specific etiological aspects have been laid out in the context of Abhyantar Krimi. The most frequent causes include Ajeernabhojana, frequent consumption of Madhura and Amla rasa, ingestion of Drava substances, Guda, and Virudhha bhojana, among others. In common Nidan, several physical elements like Divaswapna and Avyayama are also referenced.^[6]

Vishista nidanas are separate for Kaphaja, Purisaja and Raktaja Krimi.

Kaphaja Krimi- Dugdha, Guda, Tila, Matsya, Anupa mamsa, undercooked, incompatible and unwholesome articles.^[7]

Purisaja Krimi- Charaka has mentioned the same etiological factors those described in Kaphaja Krimi. Apart from these Susruta added Vidala, Parnasaka, Masa, Pistanna etc are responsible for production of Krimi.^[8]

Raktaja Krimi According to the Acharyas, Raktaja krimi and Kustha have the same aetiology. The production of Raktaja Krimi is aided by incompatible foods and vegetables, temperature changes from cold to hot and vice versa, sudden dietary changes, improper Santarpana and Apatarpana, excessive use of honey and molasses, fish, Lakucha, Chilichima fish with curd, sour berries, Kulattha, Masa, suppressing the urge to vomit, etc.^[9]

Sign and Symptoms

Both general and specific sign and symptoms of Krimi Roga is described in Samhitas. The general sign and symptoms include Jvara (fever), Vivarnata (skin discoloration), Sula (acute pain in abdomen), Hridroga, Bhrama (vertigo), Bhaktadwesa (anorexia), Atisara (diarrhea) Sadana (malaise) and Chhardi (vomiting)^[10]

Specific sign and symptoms

Bahya Krimi - Itching and urticaria rashes in the body.^[11]

Kaphaja Krimi - Hrilasa, Asyasamsravana, Avipaka, Arochaka, Jvara, Murchha, Jrimbha, Kshavathu, Anaha, Angamarda, Chhardi, Karshya, Parusya, Kasa, Pinasa, Sula, Svayathu, Hridroga, Pratisyaya, Siroroga.^[12]

Purisaja Krimi- Purisabheda, Karshya, Parusya, Lomaharsa, Gudaniskramana, Gudakandu, Sula, Agnimandya, Pandu, Visthambha, Balakshaya, Praseka Aruchi, Hridroga.^[13]

Raktaja Krimi - Raktaja vyadhi, Kesa Samshru Nakha Loma Pakshma Dhawamsa, Harsa, Kandu, Toda, excessively grown Krimi eat away skin, vessels, ligaments, muscles, cartilages and tissues. Any of these symptoms can occur in an affected person, although problems are more common and severe in older people, children, and those who already have other debilitating diseases.^[14]

Treatment Principle

The Ayurvedic Samhitas thoroughly address both preventive and therapeutic aspects. The majority of them mentioned about the three methods of treatment of apakarshana, prakriti vighatana, and nidana parivarjana.^[15]

The first phase of treatment is apakarsana. This method of treatment involves the mechanical or therapeutic ejection of the Krimi and the associated Malas from the host.

In the Prakriti Vighatana treatment, the ideal atmosphere for Krimi's growth is destroyed. To eliminate the Krimi, external medications such as Abhyanga, Sveda, Pradeha, etc., as well as various internal medications with an antibacterial component, are administered.

Avoiding dietary habits and behaviour that promote the development of Krimi are part of nidana parivarjana. It also stops secondary infection or reinfestation by preventing the growth of bacteria and parasites.

Children's growth and development are significantly hampered by worm infestation. Conditions of poverty, unclean water, sanitation, and hygiene are strongly associated with infections with helminthes, such as *Ascaris lumbricoides*, hookworm, *Hymenolepis nana*, and *Trichuristrichiura*.

Signs and symptoms of worm infestation

1. The site of the infestation within the body, the type of worm involved, the number and size of the worms, the kind of impact the infesting worms produce, and the body's immune system all affect the signs and symptoms of worm infestations.^[16]
2. Signs of the body's immune response may include eosinophilia, edema, and arthritis
3. Migration of *Ascaris* larvae through the bronchi of the lungs can cause asthma in children.
4. Helminthiasis may cause chronic illness through malnutrition including vitamin deficiencies, stunted growth, anemia, and protein-energy malnutrition. Malnutrition can cause Anorexia in children.
5. These parasitic infections manifest themselves as reduced growth rates through impaired nutrient utilization. Consequently, the children are not able to achieve their full potential in physical performance and education^[17,18]
6. Heavy hookworm burden is the major etiology for iron deficiency anemia in children.^[19]

Clinical features, Diagnosis and treatment of specific worm *Ascaris lumbricoides*

Clinical feature	Diagnosis	Treatment
1-Pain, distension, vomiting 2. Passage of worms in stool/vomitus 3. Obstruction of intestine 4. Pulmonary:-Loeffler syndrome 5. Growth failure	o Eggs in stool sample o Worms in stool / vomitus o Imaging	o Albendazole 400 mg Once (Taken with food) o Other options is Mebendazole, Ivermectin and Nitazoxanide

Enterobius Vermicularis (Pin Worm)

Clinical feature	Diagnosis	Treatment
1. Peri-anal itching 2. More at night 3. Reduced appetite	o Stool microscopy: not useful Eggs can be demonstrated in perianal swabs collected early morning.	o Albendazole 400 mg Once (Taken with food) o Other options is Mebendazole, Ivermectin and Nitazoxanide

Ancylostoma duodenale (Hook worm)

Clinical feature	Diagnosis	Treatment
1. Itching 2. Abdominal pain 3. Anorexia 4. Iron deficiency anemia 5. Hypoproteinemia	1. Stool microscopy 2. Peripheral smear	1. Albendazole 400 mg Once 2. Oral Iron therapy

Taeniasis

Clinical feature	Diagnosis	Treatment
1. Mild epigastric discomfort, 2. Nausea 3. Flatulence 4. Diarrhea	1. Microscopic identification of eggs in feces	1. Albendazole 400 mg Once

SUMMARY AND CONCLUSION

Worm infestations are present in people of all ages but children are much more prone to it as they are at the stage of beginners to learn how to cope with these parasitic enemies. Bowel complaints are common in child suffering from worm infestation. Anthelmintic

from natural sources may play key role in treatment of these parasitic infections. In last few years use of herbal medicine in treatment was increasing because of side effects associated with modern medication. Researches are being carried out now a day on large scale to discover herbal alternatives for various allopathic medications.

Because modern medication use to treat worms are having side effects like hallucinations, fever, chills, confusion, nausea, vomiting, skin rashes, dark urine, blurred vision, seizures and jaundice. In Ayurvedic textbook various Acharyas has described several effective remedies for solving all kinds of worm infestations. Apakarsana, Prakriti Visghataand Nidana Parivargana is main line of treatment in Ayurveda for Krimi roga. Kashyap Samhita describes various remedies for treatment of Krimi roga in children as Vidanga Ghrita, Katu taila Prayoga etc.

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