

A REVIEW ARTICLE ON AYURVEDIC APPROACH OF KRIMI ROGA AND ITS MANAGEMENT W.S.R TO WORM INFESTATION

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ABSTRACT

Worms are endoparasites residing in human beings. Diseases caused by helminthiasis are common and comprise very large group of infestations and infections in human beings. Children are more prone to such parasites which are due to unhygienic behaviors. In year 2008 WHO has reported 1100 million people were exposed to the risk of worm infestations. Most of the developing countries show high prevalence of worm infestation. *Ayurveda* the science of life has elaborately described about the worms as *Krimi Roga*. *Sushruta* described *Ahara Sambandi Nidan* and *ViharSambandi Nidana* for *Krimiroga*. *Acharyas* has described *Krimi* in various *Samhitas* in detail they also believe that *Krimi* can be etiological factors for various disease like *KrimiHridroga* and *KrimiShiroroga* etc. Because of various side effects of modern medication use of herbal medication was increasing now a days and also wide variety of plants possess broad spectrum antihelminthic property which are naturally available. Hence its concept of infestation and proper management is necessary for fruitful outcome.

Keywords: Worms, *KrimiRoga*, *Antihelminthiasis*

INTRODUCTION

There are a vast number of worms which reside within the human body. These worms obtain their nutrition from the digestive tract especially in the intestine which is its main site. Hence worms are parasites and humans are host. Since worms live inside the body of their host, they are also biologically termed as endoparasites.

Intestinal worm infestation is one of the major childhood health problems in developing countries like India. *Sushruta* described etiological factors related to food and daily routine for *Krimiroga*. In *Ahar SambandiNidan* (food related) includes Milk, Curd, Jaggery, Fish Meat, Sesame, Sweet and Cold Food Products that causes *Kapha Utklesham* And *ViharSambandiNidana*

include *Divaswapna* (Day sleep) and related to ahar. Acharyas has described *Krimis* in various Samhitas in detail they also believe that *Krimi* can be etiological factors for various disease like *Krimi Hridroga* and *Krimi Shiroroga* etc.

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. Doctor visits are because of common bowel complaints in child suffering from worm infestation. However, with some elementary information and knowledge, a person can quite effectively face the problems of worm infestations. In *Ayurvedic* textbook various *Acharya* has described several effective remedies for solving all kinds of worm infestations.

Prevalence in some areas appears very high while less elsewhere in the country. Developing countries in Southeast Asian region spent 3.76% of total annual budget for health in year 2010. As worm infestation appears as one of the major economic burden to the country. However according to W.H.O 1100 million people were defecating in the open space resulting in high levels of environmental contamination and exposure to the risk of worm infestations. Because of various side effects of modern medication use of herbal medication was increasing now a days and also wide variety of plants possess broad spectrum antihelminthic property which is naturally available. Hence infestation and proper management is necessary for fruitful outcome.

Causes and Transmission Modes of Intestinal Worms (*Krimi Roga*)

There are several different ways by which worm infestation can affect human beings.

1. The most prominent mode of transmission is through any kind of contact with the feces of an infected person, this can be when human excreta are used as fertilizer in farms, or when clothes of infected Child and soiled diapers of children are washed. Child in contact with the soil that contains human feces that stand high chances of getting infected with intestinal worms.
2. Eating food that is contaminated with the worms and drinking contaminated water is another common way of transmission. Worms can exist on the outer layers of the food hence Child consuming foods without washing them thoroughly are prone to worm's infestation. Raw meats, milk and eggs can contain worms that can cause intestinal infections.
3. Meats like beef, pork and fish that are undercooked contain live worm.
4. Child maintaining poor hygiene habits can not only get infected with intestinal worms, but they can also pass on the infections to another Child.
5. Worms like hookworms enter the human body through the soles of the feet. Hence Child who moves around on the open ground with bare feet has a very high degree of getting infected with hookworms.
6. Worm transferred during sexual contact. Cunnilingus (i.e. stimulating a woman's genitals with the mouth), fellatio (i.e. stimulating a man's genitals with the mouth) and anal rimming are very common modes of transmitting worms from an infected person to the other.

Different types of worms have different modes of transmissions

Table 1: Shows These Different Modes of Transmission

Types of Worms	Modes of Transmission
Flatworms	Spread through consumption of raw and undercooked meats
Pinworms	Spread from person to person directly
Roundworms (<i>Ascarislumbricoides</i>)	Spread through consumption of contaminated solid and liquid foods
Whipworms	Spread through consumption of contaminated solid and liquid foods

Table 2: Showing the Total Number of *Krimi* According to Their Sites as Mentioned In Different *Ayurvedic Classics*

Sr. No	Name of the Text	<i>Bahya</i> or <i>Malaja Krimi</i> (External)	<i>Abhyantara Krimi</i> (Internal) <i>Kaphaja/Raktaja/Purishaja</i>			Total no of <i>Krimi</i>
1.	<i>Charaka Samhita</i>	2	7	6	5	20
2.	<i>Sushruta Samhita</i>	-	6	7	7	20
3.	<i>Astangahridya</i>	2	7	6	5	20
4.	<i>Bhela Samhita</i>	-	-	-	-	20
5.	<i>Harita Samhita</i>	7	6	-	-	13

Table 3A: Showing the Site of *Krimi* As Mentioned In *Brihatrayi*

Sr. no	Text	<i>Malaja</i>	<i>Raktaja</i>	<i>Kaphaja</i>	<i>Purishaja</i>
1.	<i>Charakasamhita</i>	<i>Kesha, Shmasru, Loma, Pakshma, MalinVastra</i>	<i>Rakta-vahini Sira, Rakta-Vahini Dhamani</i>	<i>Amashaya</i>	<i>Pakvashaya</i>
2.	<i>Sushruta Samhita</i>	-	-	<i>Amashaya</i>	<i>Pakvashaya</i>
3.	<i>Ashtanga Hridaya</i>	<i>Kesha, Loma</i>	<i>Rakta-vahini Sira</i>	<i>Amashaya</i>	<i>Pakvashaya</i>

Symptoms of Intestinal Worms in Humans (*Krimi Roga*)

Sushruta describe that some *Krimi* are visible to naked eyes and some are not visible (Su U 54/20) and general symptoms of *Krimi Roga* are fever, paleness of complexion, *atisara* (diarrhea), aversion to food, *hridroga* (cardiac disease) and vertigo (Su U 54/19)

Since worms are normally found in all human beings, mostly they are asymptomatic, symptoms observed with a few worms living inside the intestines. In adults, there are no symptoms observed till the infection reaches a drastic limit, most of the symptoms are observed in children.

The common symptoms of Intestinal Worms in humans observed are Fever and

itching it begin as a mild tickling sensation and gradually get converted into a severe itching or pain. This itching is developed near the anal opening and the adjoining skin. The abdomen may become distended, grumbling noises are heard inside the abdomen due to the activity of the worms. There is occasional pain in the abdomen, which surges and ebbs. The person may lose the appetite, nausea sets in and vomiting can occur. In most worm infections, there are diarrheas. The diarrheas may be with or without bloody discharge depending on the severity of the complications. Child with worms is often flatulent. The gas released is mostly with bad odor and released noisily the mouth becomes quite parched bad breath is commonly observed.

Child who are at Risk of Intestinal Worms (Krimi Roga)

Worms are so commonly found all over the world, and in all kinds of climates, that it is very difficult to say who is not at risk from them. Almost everyone in the world has been infected with worms at one or other time

in their lives. Yet there are a few groups of Child who are more vulnerable than others.

The following is a list of Child who is the most susceptible to worm infections: -

1. In infant’s worms, can pass in through improperly boiled milk
2. In children, the different foods that they eat can cause worm infections.
3. Child who lives in very close contact with the soil are also vulnerable, these include Child of peoples who work intimately with the earth such as farmers and gardeners.
4. Even Child who is in the habit of strolling barefooted in their gardens and lawns can attract pinworms and hookworms through the soles of their feet.
5. Children who do not maintain their personal hygiene are at a very great risk of inviting some worms into their intestines.

Complications of Intestinal Worms (Krimi Roga)

Intestinal worms can cause severe complications in the Child and may even lead to the death of the person.

Table 3 B: Showing some of the important complications that each kind of worm can cause

Types of worm	Complications
Flatworms	Flatworms are beneficial in small numbers as they help to digest difficult food. But large numbers can be serious causing anemia and asthma. The pork tapeworms can lodge themselves in the brain or eye. When these are killed by the antibodies within the body, they leave behind calcium deposits, causing severe complications.
Pinworms	Pinworms can cause severe digestive disorders such as diarrheas with bloody stools. The accompanying dehydration could be fatal, especially in children. In women, pinworms can cause vaginal infections causing discharge. Insomnia is very common in Child with pinworms.

Roundworms (Ascaris lumbricoides)	Roundworms are responsible for asthma and anemia in their victims. Child suffers from insomnia and general discomfort during the daytime. Rashes occur in various places on the body. One more complication caused by roundworms is pain in the eye.
Whipworms	Diarrheas are common with whipworm infection; bloody stools are seen that lead to anemia and there may be a rectal prolapsed also.
Hookworms	They are the most dangerous because hookworms can directly burrow into the skin of the humans, they can cause severe abdominal discomfort and Edema. Large numbers of hookworms are fatal.

Prevention of Intestinal Worms

(KrimiRoga)

Following habits is the best method of preventing intestinal worms.

- Always ensure that the water you drink is properly filtered and boiled.
- The food must be properly cooked, especially if it is red meat like beef and pork.
- Vegetables must be washed thoroughly before putting in the cooking pot.
- Fruits must be washed thoroughly and ideally peeled before consumption.
- After outdoor activities like gardening, wash your hands and legs thoroughly with a disinfectant soap.
- Hands must be washed after each visit to the toilet.
- All laundry must be washed on a daily basis.
- Underwear must be washed and dried separately from other clothes.
- If one person in the house is affected, then treatment must be given to all members living in the house. This is to prevent further transmission.

Diet for Child with Intestinal Worms (Krimi Roga)

One must ensure that whatever food is consumed, it must be washed and cooked thoroughly. The same applies for drinks.

Some foods to avoid during worm infections are: -

- Red meats including mutton, beef and pork.
- Milk and milk products (especially milk that is not pasteurized properly)
- Water that is not boiled.
- Vegetables that are not washed and cooked well.

Some foods that are beneficial during worm infections are: -

- Rice that has been aged and wheat
- Buttermilk
- Vegetables like brinjals and bitter gourd
- Garlic, coriander and asafetida

Management:

Ayurvedic Treatment of Intestinal Worms (Krimi Roga)

Acharya Charaka in Vimansthana in Vyadhitarpuyaadhyaaya mentioned Trividh Chikitisa for Krimi Roga

- Apakarshana
- Prakritivighata

▪ *Nidanparivarjana* (Ch.Vi7)

1. Apakarshana –

Means extraction of *Krimi*, two ways of extraction mentioned

1. *Hasta/Yantra* (manual extraction)

Krimi which are visualized can be extracted manually by using *Yantra* or by bare hands

2. *BhesajaApakarshna* – (therapeutic extraction)

It includes *Shodhana* 1. *vaman* 2. *virechana* 3. *AsthapanaBasti* 4. *Shiro-Virechan* that are sequentially carried out same day for expulsion of *Krimi* from body

2. Prakrutivighata –

It means creating unfavorable conditions, which are exactly opposite to the habitat of the *Krimi*

3. Nidan Parivarjan-

NidanPrivarjan plays very important role in *Krimiroga* along with *Nidanparivarjan* and *PrakrutiVighata*, *NidanParivarjan* means removal of causative factor like avoid undigested food, uncooked food, polluted food.

From the principle of *Nidanparivarjanam* *Ayurveda* is giving distinct scope for both prevention and cure

Table – 3 C: Showing a list of the herbs that are beneficial with their actions on the human body

Ayurvedic Name of the Herb	Biological Name of the Herb	Common English Name of the Herb	Topical Action
<i>Ajwaine</i>	<i>Hyoscyamusniger</i>	Henbane	Though the henbane is poisonous, its seeds have a beneficial effect in curing intestinal worms. <i>Ajwain</i> seeds taken with jaggery dissolved in cold water early in the morning help in the expulsion of worms during defecation.
<i>Bael</i>	<i>Aegle marmelos</i>	Bael tree	Bael has antihelminthic properties, i.e. it can kill the worms within the body. They are useful in all inflammatory conditions of the bowels.
<i>Karpoora</i>	<i>Cinnamomumcamphora</i>	Camphor	Camphor is used as a general treatment for intestinal worms.
<i>Palasha</i>	<i>Butea frondosa</i>	Flame of the Forest	The seeds of the <i>Palasha</i> are taken with buttermilk twice daily. This is effective in the removal of roundworms.
<i>Sabja</i>	<i>Ocimumbasilicum</i>	St. Joseph's Wort, Sweet Basil	The highly cooling seeds of the sweet basil are taken in the form of a drink. This is a highly beneficial remedy in curing all kinds of intestinal worms especially tapeworms.

Vidanga	Embeliaribes	False Pepper	Black	Vidangais an anti-flatulent herb with laxative properties. Its seeds must be powdered and taken on an empty stomach. This is beneficial in the expulsion of tapeworms.
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Table no 4: Table showing list of Kalpa used in Krimi Roga

Type of Preparation	Name of Preparation
Asava/Arishta	KhadiradiArishta, VidangaArishta, Deva Darya Arishta, Vidangaasav
Bhasma/Kashaya	LohaBhasma, VangaBhasma
Choorna	VidanagadiChoorna
Ghrita	BimbiGhritam, VidanagadiGhritam
Rasa	Krimikaalanala Rasa, KurmiMudgarasa, Kurmikuthara Rasa

DISCUSSION AND CONCLUSION

Antihelminthic 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. There is increasing number of controlled experimental studies that aim to verify, validate and quantify plant activity in scientific manner.

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