

A COMPARATIVE CLINICAL RETROSPECTIVE STUDY FOR EVALUATING THE DIETARY ETIOLOGICAL FACTORS CAUSES PURISHAJ KRIMI

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Abstract

Background: In literature numerous dietary etiological factors causing Purishaj Krimi (Intestinal worms) are described. Present study aimed to validate textual dietary etiological factors as well as to enlighten present dietary etiological factors causing Purishaj Krimi by comparing in both Purshaj Krimi subjects and Non Purishaj Krimi subjects

Methods: Dietary etiological factors which causes Purishaj Krimi were reviewed in literature considered as important evaluation parameters for study. These parameters were evaluated in both Purishaj Krimi and Non Purishaj Krimi populations, based on their medical history and current investigational records

Result: In the present study, literature review which claimed dietary etiological factors causing Purishaj Krimi were evaluated in the study population. Theses comparison of dietary etiological factors between Purishaj Krimi and Non Purishaj Krimi populations aided us to validate dietary etiological factors

Conclusion: The clinical retrospective study validated actual dietary etiological factors causing Purishaj Krimi either by direct entry of Krimi in body or by providing suitable environment for Krimi production in the body.

Keywords - Purishaj Krimi, etiological factors, dietary etiological factors etc.

INTRODUCTION

The study of life known as Ayurveda explains what is both acceptable and auspicious for a person to have a happy and long life. In all Samhitas of Ayurveda, the many forms, diagnoses, and treatments for Krimiroga are well explained.

Two kinds of Krimi—Sahaj and Vaikarik Krimi—exist in the human body. They include Vaikarik Krimis, which are dangerous to people (Charak Viman Sthan 7/9). It is claimed that Krimi is one of the causes of Kushtha, Pandu, Grahani, Karshyata, and other related phenomena. Due to a lack of knowledge about nutrition and food among individuals living in the modern, fast-paced world, many patients develop Krimiroga and continue to experience its symptoms or go untreated. The suffering of children is greater than that of adults, however it does happen to adults as well. Because quick food, milk and butter products, sweets, improperly cooked food, and fermented food

are currently popular within the population and together, these variables contribute to the Krimiroga effect.¹

According to the Veda, Krimi are native to a variety of places, including Parvata, Vana, Oushadhi, Pashu, and Apshu.² The word "krimi" is derived from the Sanskrit verb "kunja himsayam," which literally translates as "to demolish or cause death." Kleda in the body is one of the reasons for the formation of Krimi, according to Charaka.³ Nidana, Bheda, Lakshana, and Chikitsa of Krimi are all extensively described in the Samhita Period. In modern science, helminthology and microbiology—which study all worms and microbes—are two distinct fields.

CLASSIFICATION OF KRIMI

Krimi is split into Drishta and Adrishta types in the Atharva Veda, which imply visible and unseen, respectively.⁴ Additionally, Durnama and Sunama Krimi are mentioned, which may be categorized as pathogenic and non-pathogenic, respectively. The entire number of Krimi and their various divisions, according to various Acharyas, are shown in the table below.

Table No. 1 Classification Of Krimi According To Acharys

Name of Achryas	Bahya Krimi	Abhyantara Krimi			Total	Total
		Kaphaja	Purishaja	Raktaja		
Charaka ⁵	2	7	5	6	18	20
Susruta ⁶		6	7	7	20	20
Vagabhatta ⁷	2	7	5	6	18	20
Madhavakara ⁸	2	7	5	6	18	20
Sarangadhara ⁹	2	7	5	6	18	20 +2
Bhavaprakash ¹⁰	2	7	5	6	18	20

[**REFERNCES** - Banashree Jena, Gopal C. Nanda, Bipin Bihari Khuntia. A Review Article on Krimi with Contemporary Assessment. International Journal of Ayurveda and Pharma Research. 2018;6(9):71-75.]

Table No. 2 Types Of Krimi According To Acharys

Type of Krimi	Charaka ¹¹	Sushruta ¹²	Vagabhatta ¹³
Bahya	Yuka, Pippilika		Yuka, Liksha
Kaphaja	Antrada, Udarada, Hrudayacara, Curu, Darbhapuspa, Saugandhika, Mahaguda	Mahapuspa, Praluna, Cipita, Pipilika, Daruna, Darbhapuspa	Antrada, Hrudayada, Udaravesta, Curu, Mahaguda, Sugandha, Darbhakusuma.
Purisaja	Kakeruka, Makeruka, Sausurada, Sasulaka, Leliha	Ajava, Vijava, Kipyra, Cipyra, Gandupada, curu, Dvimukha	Kakeruka, Makeruka, Sausurada Sasulaka, Leliha
Raktaja	Kesada, Lomada, Lomodvipa, Saurasa, Audumbara,	Kesada, Romada, Nakhada, Dantada, Kikkisa, Kusthaja,	Kesada, Lomavidhwamsa, Lomadvipa, Saurasa,

	Jantumatarah	Parisarpa	Udumbara, Matarah
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[**REFERNCES** - Banashree Jena, Gopal C. Nanda, Bipin Bihari Khuntia. A Review Article on Krimi with Contemporary Assessment. International Journal of Ayurveda and Pharma Research. 2018;6(9):71-75.]

Table No. 3 Site Of Localisation Of Krimi

Type of Krimi	Charaka	Sushruta	Vagabhatta
Bahya Krimi	Hair, Eyelashes, Skin, Clothing		Hair, Clothing
Kaphaja Krimi	Amasaya, from Amasaya spread up and down	Amasaya	Amasaya, spread everywhere
Purishaja Krimi	Pakwasaya, spread towards anus and also towards Amasaya	Pakwasaya	Pakwasaya, spread towards anus and also towards Amasaya
Raktaja Krimi	Raktavahini, dhamani	Dhamani	Raktavahi Sira

[**REFERNCES** - Banashree Jena, Gopal C. Nanda, Bipin Bihari Khuntia. A Review Article on Krimi with Contemporary Assessment. International Journal of Ayurveda and Pharma Research. 2018;6(9):71-75.]

EPIDEMIOLOGICAL FACTS AND FIGURES

The Krimiroga (Worm infestation) have been considered a major public health problem throughout the world [WHO, 1967, Wahdan, 1983, Mc Laren, 1984]. Number of incidence runs into millions and in tropical countries like ours, percentage of affected cases is estimated to exceed 80%. Its eradication becomes difficult as people continue to harbor Krimis without seeking medical help.

Krimis are the unsuspected and undetected villains responsible for exposing the victims to a large number of diseases by robbing them of their hard earned nutrients, thus lowering their body defense. Hookworm, suck 0.4 ml of blood per worm per day, thereby cause anemia and make them physically weak, remain unhealthy throughout their life span.

NIDANA OF FORMATION OF KRIMI

The Samhitas mention the etiological causes for both Bahya and Abhyantara Krimi. The "Mrija barjana" or unclean and unsanitary behaviors, which cause the Bahya or external Krimi, are responsible.¹⁴ there have been both general and particular etiological variables proposed in relation to Abhyantar Krimi. Ajeernabhojana, regular use of Madhura and Amla rasa, ingestion of Drava substances, Guda, Virudhha bhojana, etc. are some of the major causal factors. Common Nidan also mentions several physical elements, such as Divaswapna and Avyayama.¹⁵

There are distinct Vishista Nidanas for Kaphaja, Purisaja, and Raktaja Krimi.

Kaphaja Krimi-Tila, Matsya, Dugdha, Guda, Anupa mamsa, and other uncooked, unsuitable, and unwholesome foods are included in Kaphaja Krimi.¹⁶ The same etiological variables that are discussed in Kaphaja Krimi are also mentioned.

Purisaja Krimi-Charaka. Apart from these, Vidala, Parnasaka, Masa, Pistanna, and others are in charge of producing Krimi, according to Susruta.¹⁷

Raktaja Krimi -The Acharyas have stated that Raktaja Krimi and Kustha share a same etiology. Fish, Lakucha,

Chilichima fish with curd, sour berry, Kulattha, Masa, changing from cold to hot and vice versa, abrupt diet changes, improper Santarpana and Apatarpana, excessive use of honey and molasses, improper Santarpana and Apatarpana, improper Santarpana and Apatarpana, improper Santarpana and Apatarpana, improper Santarpana and Apatarpana,¹⁸

NIDAN PARIVARJANA IS THE MOST IMPORTANT PRINCIPLE AS -

Acharya Charaka has beautifully described threefold chikitsa for Krimiroga viz. Apakarshana, Prakritivighata and Nidanparivarjana. Apakarshana means to scratch the dushta dosha, mala and Krimi sanghata forcefully. Prakritivighata means destruction of susceptible environment of Krimi. Nidanparivarjan means avoidance of Hetu (causative factors) of Krimi.

- It may cut off the necessity of Aushadhi.
- Extra contaminated intake is prohibited.
- Help in the treatment of the patient and relive them early.

Nidan sevan allows the entry of Krimis in the body and lays down a suitable environment in the body for germination and growth of Krimis. Hence for complete eradication of Krimirog, Nidanparivarjan is must. That is why, though Nidanparivarjan is mentioned as Samanya Chikitsa Siddhanta in Ayurveda Samhita, it is again highlighted in Krimi Chikitsa.

The present retrospective study aimed to evaluate textual dietaryetiological factors and to enlighten present dietary etiological factors which are responsible for Purishaj Krimi in Purishaj Krimi subjects by comparing it with Non Purishaj Krimi subjects.

GENERAL LAKSHANAS OF KRIMI

Samhitas discuss both the general and particular signs and symptoms of Krimi Roga. Jvara (fever), Vivarnata (skin discolouration), Sula (acute abdominal pain), Hridroga, Bhrama (vertigo), Bhaktadwesa (anorexia), Atisara (diarrhea), Sadana (malaise), and Chhardi are some of the typical signs and symptoms (vomiting).¹⁹

MATERIAL AND METHOD:

The clinical retrospective study was carried out in the Bharatiya Sanskriti Darshan Trust's Ayurved Hospital and Research Center, Wagholi, Pune, after receiving Ethics Committee approval letter.

CASE REPORT

GROUPING

The study was carried out in n= 100 subjects, two groups were selected Group A (50 Purishaj Krimi subjects) and Group B (50 Non Purishaj Krimi subjects).

Criteria Of Selection Of Subjects:

Group	Symptoms of Purishaj Krimi	Stool examination
A – 50 Subjects	Present	Positive for worms & ova
B – 50 Subjects	Absent	Negative for worms & ova

Informed Consent of Subjects was taken for the study. To start with, the subjects were investigated thoroughly both on Ayurvedic and modern lines and the diagnosis was made accordingly.

A subject presenting with signs and symptoms of Purishaj Krimi and having microscopic stool examination positive for worms and ova enlisted in Group A, while subjects having no signs and symptoms of Purishaj Krimi and microscopic stool examination negative for worms and ova enlisted in Group B.

CRITERIA FOR DIAGNOSIS:

1. Detailed history was taken according to the Proforma prepared.
2. The condition with all the symptoms was assessed.
3. Microscopic stool examination done.

STATISTICAL ANALYSIS OF THE STUDY ETIOLOGICAL FACTORS:

The Chi-square method was used for statistical evaluation of etiological factors and the statistical significance P value was used.

OBSERVATIONS AND RESULT:

Table No. 1: Age Wise Distribution Of Subjects.

Age group in years	No. of subjects in Gr. A	% of Gr. A subjects	No. of subjects in Gr. B	% of Gr. B subjects
12 to 24	29	58	07	14
25 to 36	11	22	09	18
37 to 48	06	12	19	38
49 to 60	03	6	12	24
61 and above	01	2	03	6

Table No. 2 Distribution Of Hetu According To Specific Food Items OfGroup A

Sr. no.	Hetu	No of Subjects (Hetu Sevan)				Total No.of Subjects (Hetu Sevan)	% ofGr.A Subjects
		Score	Score	Score	Score		
		0	1	2	3		
1	Ksheer	29	2	3	16	21	42
2	Payas	46	4	0	0	4	8
3	Dadhi	30	8	11	1	20	40
4	Gud	44	0	1	5	6	12
5	Masha	35	15	0	0	15	30
6	Matsya	46	4	0	0	4	8
7	Palak	23	6	21	0	27	54
8	Mataki	16	6	28	0	34	68
9	Pruthuk	30	7	13	0	20	40
10	Tila	48	2	0	0	2	4
11	Paneer	30	18	2	0	20	40
12	Butter	35	0	11	4	15	30
13	Cheese	40	10	0	0	10	20
14	Ice cream	34	12	4	0	16	32
15	Bread	29	10	11	0	21	42
16	Idli	26	14	10	0	24	48
17	Chat	35	10	5	0	15	30
18	Biscuit	30	6	10	4	20	40
19	Noodles	30	12	8	0	20	40
20	Vada pav	29	14	7	0	21	42
21	Juices	40	5	5	0	10	20
22	Chocolate	30	7	13	0	20	40
23	Burger	43	7	0	0	7	14

Maximum i.e.68% subjects were consuming Mataki, followed by 54% subjects were consuming Palak, 48% subjects were consuming Idli, equal 42% subject were consuming Bread and Vadapav, equal i.e.40% subjects were consuming Dadhi, Pruthuk, Paneer, Noodles and Chocolate,32% subjects were consuming Ice-cream, equal i.e. 30% subjects were consuming Mash, Butter and Chat, equal i.e. 20% subjects were consuming Cheese and Juices,14% subjects were consuming Burger, 12% subjects were consuming Gud, 8% subjects were consuming Payas, only 4% subjectswere consuming Til.

Table No. 3 Distribution Of Hetu According To Specific Food Items OfGroup B

Sr.no.	Hetu	No of Subjects (HetuSevan)				Total No. of Subjects(Hetu Sevan)	% ofGr. B Subject
		Score	Score	Score	Score		
		0	1	2	3		
1	Ksheer	44	0	2	4	6	12
2	Payas	50	0	0	0	0	0
3	Dadhi	46	4	0	0	4	8
4	Gud	50	0	0	0	0	0
5	Masha	48	2	0	0	2	4
6	Matsya	50	0	0	0	0	0
7	Palak	41	9	0	0	9	18
8	Mataki	42	8	0	0	8	16
9	Pruthuk	44	6	0	0	6	12
10	Tila	50	0	0	0	0	0
11	Paneer	44	6	0	0	6	12
12	Butter	45	5	0	0	5	10
13	Cheese	50	0	0	0	0	0
14	Ice cream	47	3	0	0	3	6
15	Bread	46	4	0	0	4	8
16	Idli	46	4	0	0	4	8
17	Chat	50	0	0	0	0	0
18	Biscuit	44	6	0	0	6	12
19	Noodles	48	2	0	0	2	4
20	Vada pav	47	3	0	0	3	6
21	Juices	50	0	0	0	0	0
22	Chocolate	46	4	0	0	4	8
23	Burger	50	0	0	0	0	0

18% subjects were consuming Palak followed by 16% subjects were consuming Mataki, equal i.e. 12% subjects were consuming Pruthuk, Paneer, and Biscuit, 10% subjects were consuming Butter, equal i.e.8% subjects were consuming Bread, Idli and Chocolate, equal i.e.6% subjects were consuming Ice-cream and Vadapav, equal i.e. 4% subjects were consuming Mash and Noodles.

Table No. 4 Distribution Of Hetu According To Ashana Of Group A.

Srno	Hetu	No of Subjects (Hetu Sevan)				Total No. of Subjects (Hetu Sevan)	% of Gr. A Subjects
		Score	Score	Score	Score		
		0	1	2	3		
1	Adhyashan	8	0	24	18	42	84
2	Ajirnashan	12	0	22	16	38	76
3	Asatmyashan	20	4	17	9	30	60
4	Viruddhashan	15	17	15	3	35	70
5	Sankirnaashan	20	25	2	3	30	60
6	Paryushitannasevan	30	16	2	2	20	40

Table No. 5 Distribution Of Hetu According To Ashana Of Group B

Sr.no.	Hetu	No of Subjects (HetuSevan)				Total No. of Subjects (Hetu Sevan)	% of Gr. B Subject
		Score	Score	Score	Score		
		0	1	2	3		
24	Adhyashan	42	8	0	0	8	16
25	Ajirnashan	42	8	0	0	8	16
26	Asatmyashan	39	11	0	0	11	22
27	Viruddhashan	40	10	0	0	10	20
28	Sankirnaashan	43	7	0	0	7	14
29	Paryushitannasevan	41	9	0	0	9	18

DISCUSSION:

Krimi has both large- and small-scale creatures. The environment, accessible physical characteristics, together with the signs and symptoms they cause in the host, all have a role in the association of the Krimi with microorganisms and parasites. Although it is very difficult to individually correlate every Krimi with microorganisms, certain Krimi produce traits that are comparable to those of germs and parasites.²⁰ there haven't been many attempts by Ayurvedic researchers to link the different Abhyantara Krimi kinds to parasites and other microbes identified in contemporary literature. Liksha and Bahya Krimi Yuka can be compared to louse (head, body, pubic region), as well as the louse eggs that adhere to the root of the hair. Acharyas were also knowledgeable about Krimi, which is said to be the root cause of several diseases.²¹

The Raktaja Krimi are creatures that live and travel in the Raktavaha Sira and Dhamani. They are extremely small, lack legs, are copper in color, are invisible to the naked eye, and produce illnesses similar to those caused by the Kustha, such as Nakha, Loma Dhwasma, Brana, Twak, Sira, Snayu, and Tarunasthi Bhakshana. Here are some instances of bloodstream microorganisms that cause comparable bodily features.²²

The Kaphaja Krimi is located in the upper region of the stomach, however it can migrate in both directions when there is an increase in population. They can be thick, flat, elongated, rounded, ring-shaped, etc., and they can also cause nausea, salivation, anorexia, indigestion, fever, syncope, vomiting, and other symptoms. The parasites listed below can be compared to Kaphaja krimi.²³

Purisaja Krimi lives in the lower intestine but moves through the upper and lower gut when its population grows. They might be microscopic or macroscopic in size, and they can cause clinical symptoms including diarrhea, emaciation, pallor, horripilation, itching in the perianal area, etc. The organisms listed below are possibly related to Purisaja Krimi.²⁴

OBSERVATIONS OF 100 SUBJECTS WERE DONE ACCORDING TO PROFORMA

Age: Maximum subjects belong to age group 12 -24 years in group A. Subjects of these group consistently have hotel food, eat food products from the street hawkers such as vadapav, chat, juices etc. and have more urge for outside food, fast food.

AJIRNA, ASATMYA, VIRUDDHA, SANKIRNA, PARYUSHIT AND ADHYASHAN:

In present study 84% subjects in group A and 16% subjects in group B were doing Adhyashan, 76% subjects of group A and 16% subjects of group B were doing Ajirnashan, while 60% subjects of group A and 22% subjects of group B were doing Asatmyashan, in group A 70% subjects were doing Viruddhashan while in group B 20% subjects were doing Viruddhashan, 60% subjects of group A and 14% subjects of group B were observed doing Sankirnashan, Paryushitanna Sevan was done in 40% subjects of group A and 18% subjects of group B. Due to above mentioned Ajirnadi bhojan hetus, Agnidushti occurs which further leads to Agnimandya. Agnimandya is responsible for Ama utpatti and vitiation of Tridosha. They directly provide favorable condition for production and development of Krimi.

SPECIFIC FOOD ITEMS:

KSHEER:

Maximum i.e. 42% subjects of group A and 12% subjects of group B were consuming Ksheer. Milk is having madhur rasa madhur vipak. It is guru and snigdha gunapradhan with sheeta virya and kaphakar. Due to more intake of milk the quantity of madhur rasa i.e. proportion of pruthvi and aap Mahabhutas abnormally increases which acts as a good foundation for development of Krimi.

PAYAS (PARMANNA):

8% subjects of group A were consuming Payas while no one was observed consuming Payas in group B. Payas/Parmanna means a food product made with milk which is also madhurarapradhan. It does its role as discussed above.

DADHI:

Maximum i.e. 40% subjects of group A and 8% subjects of group B were consuming Dadhi. Dadhi is Amla rasatmak, Amlavipaki, Guru and Abhishyandi. Excess intake of Dadhi Abhishyandya, Ama utpatti and Klednirmiti which creates favourable condition for Krimi production and growth.

GUD:

Maximum i.e. 12% subjects of group A were consuming Gud while no one was observed consuming Gud in group B. Gud itself produces more Krimi. It is also madhura rasapradhan and Kledakar.

MASHA:

Maximum i.e. 30% subjects of group A and 4% subjects of group B were consuming Masha. Masha is Snigdha, Guru, Ushna, Amlapittakar and Kaphakar. So excess intake of Masha means more chances of development of Krimi.

MASTYA:

Maximum i.e. 8% subjects were consuming Mastya in group A. No one was consuming Mastya in group B. Matsya produces excess of kapha dosha which is composed of Pruthvi and aap mahabhut. So it acts as a helping hand for production of Krimis.

PALAK:

Maximum i.e. 54% subjects of group A and 18% subjects in group B were consuming Palak. Palak is Guru, Sara. Palak is a Patrashak. Patrashak is Bahuvitkar means which produce more quantity of stool, which provides favorable condition for Krimi production and growth.

MATAKI/MAKUSTHA:

Maximum i.e. 68% subjects of group A and 16% subjects of group B were consuming Mataki. Mataki is Vidal Dhanya. Vidal Dhanya produces more faecal matter due to which Purishaj Krimis are formed. Makushta is mentioned as Krimikar and its importance in formation of Krimi can be seen by its synonym.

PRUTHUK:

Maximum i.e. 40% subjects of group A and 12% subjects of group B were consuming Pruthuk. Pruthuk is Guru, Kaphakar and Vishtambhi hence causes Agnimandya and ultimately Amotpatti which creates favorable environment for Purishaj Krimi.

TIL:

Only 4% subjects of group A were consuming Til while in group B no one was observed consuming Til. Til is ushna gunatmaka. Due to its more intake kapha and pitta prakop take place. As it decreases quantity of urine percentage, the kledavahan gets hampered. So the quantity of kleda in pakvashaya increases abnormally which provides good environment for production of purishaj Krimi. As number of subjects observed consuming Til is very less, further study should be carried out regarding it.

MILK PRODUCTS:**Paneer:**

Maximum 40% of subjects of group A and 12% subjects of group B were consuming Paneer.

Butter:

Maximum 30% of subjects of group A and 10% subjects of group B were consuming Butter.

Cheese:

Maximum 20% of subjects of group A were consuming cheese while no one in group B was consuming Cheese.

Ice-Cream:

Maximum 32% of subjects of group A and 8% subjects of group B were consuming Ice-cream.

CONCLUSION:

In general, krimi refers to worms and microbes. Its presence was sensed during the Vedic era, but specifics weren't discovered until the Samhita era. The development of the microscope made studying germs easier in the contemporary period. The Adrishta Krimi is the more common of the two varieties of Krimi, along with Drishta and Adrishta. Madhur, Amla, Dravapraya Aahar has major role in Purishaj KrimiSamprapti. Mataka (Makushta), Palak and Ksheer mentioned as Granthokta Hetuare observed as causative factors of Purishaj Krimi. Paneer, Bread, Idli and Vada-Pav are present causative factors of Purishaj Krimi. Viruddhashan, Ajirnashan, Adhyashan, Paryushitanna Sevan are important causative factors of Purishaj Krimi. Sankirnashan i.e. Maladi Mishrit Anna causes direct entry of Krimi inbody. Nidan Parivarjana is of prime importance in Vyadhi Chikitsa.

Conflict of Interest - NIL

Source of Support – NONE

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