A REVIEW ON THE MANAGEMENT OF PUREESHAJA KRIMI (ASCARIS LUMBRICOIDES)
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INTRODUCTION

Health education and awareness is a boon to the society. But there still exists a class of population who are victims of parasitic infestations that is ruining their health. The actual prevalence rate however cannot be figured out as they either remain undiagnosed or may not be reported at all. There are always two sides of a coin; despite medical advancement, ignorance, poverty and lack of basic hygiene still continues to take away many lives.

With the rising morbidity especially in the pediatric age group, it is required to be acquainted with the knowledge on the present etiopathological status of intestinal helminths.

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ABSTRACT

Helminthiasis is one of the most common paediatric problem faced world-wide especially in tropical and sub-tropical geographical area. Recent global estimates indicate that more than a quarter of the world’s population are infected with one or more of the parasitic infections, the most common being round worm – Ascaris Lumbricoides. Poverty, ignorance, lack of hygiene, poor sanitation and use of uncooked food or improper washing of food materials etc are the common aetiologies for the spread of helminthiasis in developing countries like India. The Ayurvedic perspective of worms is discussed under the topic of Krmi and helminthiasis specifically can be correlated to the Pureeshaja type of Krmi.

While the treatment protocols for worm infestations in modern medicine widely uses medicines like Mebendazole, Albendazole and Levamizole; the treatment approach in Ayurveda is quite unique from the latter’s principle. The management approach in Ayurveda involves three stages namely Apakarshana (elimination therapy), Prakruti Vighata (to create an unfavourable environment) and Nidana Parivarjana (avoiding the aetiology). Many research studies have been taken up in view of the above treatment principle. Hence this article lays out the understanding of Pureeshaja Krmi, its correlation with Ascaris lumbricodes. The article also discusses regarding its management through the principles of Ayurveda and cites a few research studies that have been carried out by such protocols. This article hereby concludes that a comprehensive management through Ayurveda by the use of purificatory measures, pharmacological compounds and preventive measures can effectively treat Krmi Roga.

Keywords: Krmi, Helminthiasis, Pureeshaja Krmi, Ascaris lumbricoides

INTRODUCTION

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With the rising morbidity especially in the pediatric age group, it is required to be acquainted with the knowledge on the present etiopathological status of intestinal helminths.

Although the subject of microbiology viz. Agada Tantra has been given a status amongst the Ashtanga Ayurveda1 nevertheless this branch has not much
been explored and established in comparison with the modern science. Kaviraj Gananath Sen in the preface of his book “Siddhanta Nidana” has mentioned the necessity of knowledge of microorganisms to fulfill objects like: Satya Anaveshanartha (to know the truth), Sankraman Avaarnartha (to check the spread of the diseases), Chikitsa Vishesha Abhyupgamanartha (to plan and find out special and new treatments), and lastly regarding its interpretations in Pradurbhootha Kechan Navin Rogah (to study certain newly occurring diseases). It is the need of the hour to add up to the areas of lacunae mandatory for the propagation of the science. Hence this paper reviews on the concept of Krimi especially with regard to Pureeshaja Krimi, its correlation with As-caris lumbricoides and also its management protocol in Ayurveda. For this reason an effort has been taken to re-understand the concept of Krimi, its correlation and effective management through citing references from reliable sources such as classical texts on ayurveda which includes the Charaka Samhita, Susruta Samhita, Kashyapa Samhita; various vedic texts citing Krimi and also a few research studies that have used Ayurvedic compounds for treatment of the same.

Introduction to Krimi: “Krinalthi himsathi ithi Krimi”²: Although the colloquial meaning of Krimi refers to worms, by etymology it is defined as the one which causes sufferings. Even from the Vedas references have been cited regarding Krimi³⁴ as those of them that causes ill-health, disease and even death. However the concept of interpreting the Graha Rogas as to infectious diseases caused by pathogenic micro-organisms is still a matter of debate. On interpreting the term Krimi Roga, besides incorporating the affliction by micro or macro organisms, it can also include under it the afflictions by other Agantuja Karana⁵ like Rakshasas, Pishacha, Gandarvas through its etymological meaning,⁶ Acharyas like Charaka⁷, Susruta⁸, Vagbhata⁹ and even the contemporary authors have given a systematic description of Krimi rogas including their classification, causative factors, general description, signs and symptoms, treatment and preventive measures. When analyzed, these descriptions are more or less at par with the modern Helminthology.

20 varieties of Krimis that have been illustrated are broadly classified into Bahya (external) and Abhyantarita Krimi (internal)¹⁰. Among them, Pureeshaja Krimi falls under the latter division.¹¹ Samanya Krimi Nidana¹²: (Common aetiology): Nidana refers to the causative factors which can be broadly divided into Ahara Sambandi Nidana (food-related) and Vihara Sambandi Nidana (activity-related). Ahara Sambandi: Milk, jaggery, sesamum, fish, meat or and other products that cause Kapha Utklesham, besides, also includes the food which are unctuous, sweet, heavy, cold items etc. Vihara Sambandi¹³: Divaswapna (day sleep), Asana & Avyayama (prolonged sitting which indirectly indicates lack of exercise)

Krimi Lakshana (Symptomatology): On the prodromal features only Ajeerna (indigestion) and Angnimandhya (loss of digestive power) have been mentioned. In clinical signs and symptoms of Abhyantarita Krimi, Acharya Susruta and Madavakara have mentioned – Jwara (fever), Vivarnata (discolouration), Shoola (pain), Hridroga (diseases of the heart), Bhrama (giddiness), Bhaktdwesha (disinterest towards food), Atisara (diarrhoea), Sadana (tiredness), Chardi (vomiting) and Swasa (breathlessness).¹⁴ Apart from all those
Acharya Charaka has quoted about some Vishesha Roopas (specific signs) such as Purishabheda (unformed stools), Karshya (emaciation), Lomaharsha (cutis anserina) etc.\textsuperscript{15}

**Krimi Samanya Chikitsa** (General line of treatment): Acharya Charaka has put forth the basic principle in the treatment of Krimi in the Vyadhita rupiya adhyaya of Vimana Sthana.\textsuperscript{11} Sequential adoption of the three modes of treatment has been stated which are\textsuperscript{16}

1. Apakarshana
2. Prakrut Vighata
3. Nidana Parivarjana

**Apakarshana**
As the name indicates it refers to the extraction of the Krimi, by two different ways.

I. Hasta / Yantra (manual extraction) – visible Krimi are to be manually extracted by bare hand or by Yantra (instruments like sandamsha etc).

II. Bhesaja Apakarshana (therapeutic extraction)
- Under the above is included the various Shodhana (purificatory therapies) that are to be carried out sequentially on the same day for the forceful expulsion of the Krimi-
  a. Vamana (emesis)
  b. Virechana (purgation)
  c. Asthapana basti (cleansing enema)
  d. Shiro Virechana (errhines)

**Prakrut Vighata:** It refers to creating an unfavourable environment or a medium which is exactly opposite to the habitat of the infested region (intestinal lumen). This is accomplished by the use of drugs possessing qualities such as Katu (pungent), Tikta (bitter), Kashaya (astringent), Kshara (caustic alkalis) and Usna (hot). These are advised in all aspects of the patient daily activities i.e. in food, drinks, for washing etc. With regard to the pharmacological action, drugs possessing krimigna (anti-microbial) property have been enumerated like Maricha (Piper nigrum), Gandira (Amorphophallus campanulatus), Vidanga (Embelia ribes) etc.\textsuperscript{17} Additionally various classical formulations with Danti (Baliospernum montanum) and Dravanti (Chlorophyllum tuberosum), tilvaka (Viburnum nervosum) and udallaka (Bauhinia variegata) in tilvaka (Viburnum nervosum) kashaya etc have also been mentioned.\textsuperscript{18}

**Nidana Parivarjana :** Along with the termination of worms and therapeutic administration, avoidance of causative factors has also been emphasized in Ayurveda. This includes avoidance of non-compatible food, polluted food, non-acclimated food, undigested food and all other factors like milk etc that have been stated earlier. Although the above have been stated on the curative lines, the observance of Nidana Parivarjana can also be understood in the lines of prevention. It is in the principle of Nidana Parivarjana where Ayurveda is distinct in its approach to Krimi; thus giving scope for both cure and prevention.

**Helminthiasis:** Helminthiasis is the most common paediatric complaint worldwide. Recent studies shows incidence of worm infestation is about 200 million in India.\textsuperscript{19}

The word HELMINTH is derived from the Greek word Helmin meaning worms and which specifically refer to intestinal worms. The parasites helminthis are multi cellular, bilaterally symmetrical organisms having 3 germ layers. The higher animals including human beings serve as hosts for these parasites and their nutritional requirements. Hence helminthology refers to study of worms which are pathogenic and which inhabit the human body. The history of contemporary medi-
cine has also documented the knowledge regarding microorganisms even before the invention of microscope by Antor Levan Hook (1632-1723). This is well evident from the oldest Egyptian manuscripts (1500 BC) - Ebis papyrus which has documented regarding the awareness of worm infestations. Hippocrates, the father of modern medicine has also described about beef tape worm and in addition has also recognized Hydatid worm/cyst causing Hydatid disease.20

**DISCUSSION**

As stated earlier, helminthic infections especially Ascariasis caused by Round worm (Ascaris Lumbricoides) is a common manifestation. With the knowledge of worms from both the systems of medicine, Pureeshaja Krimi and its affliction can be co-related to Ascariasis and Ascaris lumbricoides as they share a lot of similarities. Some of them are explained below:

I. **Sthana** (Site): Pakvashaya which is stated as the Sthana for Pureeshaja Krimi, is considered as a part of intestine between Ileocecal junction and sigmoid colon. According to the modern parasitology, organisms like Ascaris lumbricoides (round worms), hook worm etc also dwell in the same vicinity.

II. **Akruty** (Shape): Pureeshaja Krimi has been described as Sookshma (minute), Vrittha (round), Deergha (long), Sthoola (big), Prithavapucksa (flat tail) and Tanu (thin)21. On the other hand Ascaris lumbricoides has also been identified to be a round, elongated worm measuring from 15-30cm in males and 20-40cm in females with curved proximities and the tail end being elongated and flat.

III. **Varna** (color): Pureeshaja Krimi is mentioned to possess colours like Shweta (white), Shyava (pale), Neela (blue), Harita (green), Peeta (yellow).21 Nonetheless, ascaris worms are also pinkish white in colour and occasionally yellowish too. Hence with the above substantiation it can be assumed that Ascaris lumbricoides can be considered as a type of Pureeshaja Krimi. Pureeshaja Krimi are further sub-classified as per Charaka as Kakeruka – highly motile, Makeruka – shape of Mudrika, Sausrada- shelters on fermented materials, Leliha- continuously licks/feeds and consume Dhatus (seven tissue elements of the body), Sashoolika - causing pain in the host.21 Regarding Ayurvedic management, various researches have been conducted with Ayurvedic compounds for treatment of the same. Below are listed a few research studies:

1. Studies on efficacy of aqueous and methanol extracts of some medicinal plants for potential antibacterial activity. Jigna Parekh et al, Department of Biosciences, Saurashtra University, Rajkot.22

2. Clinical management of Pureeshaja Krimi in children with Palasha Beeja Choorna by Dr. Manjunath MP 2004-05

3. A study of Sanjeevani guti in treatment of Kaphaja and Pureeshaja Krimi as Prakruthy Vighatha Chikitsa by Humbardikar DB pune 1995


5. Dash Durgaprasad (2001) treatment of Krimi Roga with the extract of Hyosyamus niger Linn- Puri.23

These studies have thus revealed the efficacy of Ayurvedic compounds in the treatment of Pureeshaja Krimi vis-à-vis Ascaris lumbricoides. Owing to the successful management of Krimi on the basis of Ayurvedic approach various research studies are thus being carried out to validate the same.
Chemotherapy is currently the major tool\textsuperscript{24} used for the strategic control of Ascariasis however it is only a short-term goal. Nonetheless, preventive measures such as improvements in hygiene and sanitation are thought to considerably aid as a long-term control.\textsuperscript{25} This aspect has been well stressed in Ayurveda under the name of Nidana Parivarjana which is one among the treatment protocol. It has been evident that poor socio-economic conditions are among the key factors linked with higher prevalence of Ascariasis, as are defecation practices, geophagia, cultural differences relating to personal and food hygiene, occupational necessity, agricultural factors, housing style, social class and gender. Although the text mentions only of diet modifications, in the present context the concept of Nidana Parivarjana can also be extended to external hygiene etc which has been the key factor in causing this disease. Under the above measures the careful adoption of diet and food habits as mentioned in Ayurveda certainly has a big role in the prevention of the same.

CONCLUSION

Ascariasis has known to be a problem of concern especially in the developing countries like India. It owes its existence to unhygienic and poor sanitary care. The knowledge of Krimi has been well known and comprehended even at the earliest times of the Vedic period. Explicit explanation regarding the same is also evident in the context of Ayurveda. This paper has thus attempted to interpret the aspect of Pureeshaja Krimi with Ascaris lumbricoides. Various studies regarding the management of Pureeshaja Krimi with Ayurvedic compounds have also been cited. Both Ayurveda and contemporary medicine have stressed on preventive measures as a major aspect of its treatment protocol. In the grounds of curative measures, Ayurveda also identifies the implementation of several eliminatory or purificatory measures in completely evacuating the micro organism from the body. Hence a comprehensive management with purificatory measures, pharmacological compounds and preventive measures effectively treats Pureeshaja Krimi vis-a-vis Ascaris lumbricoides.

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