



CRITICAL ANALYSIS OF SNAYUKA VYADHI W.S.R.To GUINEA WORM DISEASE (GWD)

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ABSTRACT

In India the Guinea Worm Disease was endemic in 89 districts in seven states. India was declared as guinea worm disease free country by WHO in 2000. But intestinal parasitic infection is a main public health problem in developing countries. In Ayurveda, reference of Snayuka roga is available in Bhavprakash, Sharangadhara Samhita, Madhava Nidana and Yogaratnakara. Snayuka roga is caused by a kapha-raktaja krimi, named Snayuka. This disease is characterised by shotha (swelling), daha (severe burning sensation), discolouration of skin, blisters formation similar to visarpa (Erysipelas) and it further worsens the condition if the jivam (worm) crawls out of ulcer breaks further worsens the condition. On complete exit of worm from body through the wound, the symptoms get reduced. However, it can reoccur in other distant places. These symptoms and presentation of Snayuka roga resembles with Dracunculiasis in modern science, which was endemic in various countries in last century. Dracunculiasis, a vector-borne disease, commonly known as Guinea-worm disease, is caused by the parasite called Dracunculus medinensis, commonly called as "Guinea-worm". Its larvae migrate through the Cyclops containing water to the hosts by drinking and after degeneration of Cyclops in the stomach; they migrate to subcutaneous tissues, causing severe pain along with burning sensation followed by local swelling, blisters and finally an ulcer. There is need to create awareness among people about intestinal parasitic infections. Most discussion regarding Snayuka roga encounters in Ayurveda literature is analogous with dracunculiasis. Hence, here an effort has been made to understand and review Snayuka roga, caused by Snayuka krimi as explained in Ayurvedic texts, correlating Dracunculiasis (Guinea worm disease- GWD).

KEYWORDS: Snayuka roga, Dracunculiasis, Guinea worm, Snayuka krimi, GWD.



worm and is the largest worm of the tissue parasite affecting humans. Dracunculiasis is rarely fatal, but infected people become non-functional for weeks and months. It affects people in rural, deprived and isolated communities who depend mainly on open stagnant surface water such as ponds for drinking water.

A person becomes infected by drinking water containing water fleas infected with guinea worm larvae. After ingestion, the worms penetrate the digestive tract and escape into the body, where they develop over a year. Eventually, the adult worm migrates to an exit site – usually a lower limb – and induces an intensely painful blister on the skin. When an infected person submerges the wound in water to ease the pain, the blister bursts open and the worm spews its larvae into the water, then slowly crawls out of the wound over a few weeks. The wound remains painful throughout the worm's emergence, disabling the infected person for the three to ten weeks it takes the worm to emerge. During this time,

INTRODUCTION

Dracunculiasis or Guinea Worm Disease (GWD) – a crippling parasitic disease on the verge of eradication, with 27 human cases reported in 2020. It has been eliminated in most parts of the world, but still exists in Chad, Ethiopia, Mali and South Sudan. It is caused by the parasitic worm-*Dracunculus medinensis* or Guinea-

the open wound can become infected with bacteria, leading to death in around 1% of cases.

Dracunculus medinensis larvae reside within small aquatic crustaceans called copepods. When humans drink the water, they can unintentionally ingest infected copepods. During digestion the copepods die, releasing the *D. medinensis* larvae. The larvae exit the digestive tract by penetrating the stomach and intestine, taking refuge in the abdomen or retroperitoneal space. Over the next two to three months the larvae develop into adult male and female worms. The male remains small at 4 cm (1.6 in) long and 0.4 mm (0.016 in) wide; the female is comparatively large, often over 100 cm (39 in) long and 1.5 mm (0.059 in) wide. Once the worms reach their adult size they mate, and the male dies. Over the ensuing months, the female migrates to connective tissue or along bones, and continues to develop.

About a year after the initial infection, the female migrates to the skin, forms an ulcer, and emerges. When the wound touches freshwater, the female spews a milky-white substance containing hundreds of thousands of larvae into the water. Over the next several days as the female emerges from the wound, she can continue to discharge larvae into surrounding water. The larvae are eaten by copepods, and after two to three weeks of development, they are infectious to humans again.

The first signs of dracunculiasis occur around a year after infection, as the full-grown female worm prepares to leave the infected person's body. As the worm migrates to its final site – typically the lower leg – some people have allergic reactions, including hives, fever, dizziness, the wound remains intensely painful as the worm slowly emerges from the wound over several weeks to months. An infected person can harbour multiple worms – up to 40 at a time – which will emerge from separate blisters at the same time.

As the worm emerges, the open blister often becomes infected with bacteria, resulting in redness and swelling, the formation of abscesses, or in severe cases gangrene, sepsis or lockjaw. When the secondary infection is near a joint (typically the ankle), the damage to the joint can result in stiffness, arthritis, or contractures.

According to Ayurveda, Nidanpanchaka of Guinea worm disease, vis-à-vis can be explained as follows.

Nidana / Hetu (Etiological Factors)

‘Atyantavrishyaadi nimittato yada seveta dushtam bahusho jalam va’ ‘Tantunibham jeevam vrittam shwetadyutih bahih’

- ❑ Consumption of dushta jala produced from heavy rain (contaminated water) should be regarded as Nidana, as aetiological factor for Snayuka vyadhi
- ❑ Dushta jala containing Jivam ie krimi (worm) enters the body and results in dushti (vitiation) of dosha.

- ❑ As per Acharya Sharangadhara, this Jivam has round, whitish thread like structure which resembles **tendon** and thus named as **Snayuka** which is a kapha-raktaja krimi

Samsthana (Manifestation Site)

‘Shaakhasu kupito doshah’

- ❑ ‘Shakha’ ie Bahya rogamarga- ‘Raktaadidhatutwak cha’ (skin including raktadi dhatus).
- ❑ The progression of the disease also happens with involvement of successive dhatus.
- ❑ Shakha may also be interpreted as involvement of extremities or limbs

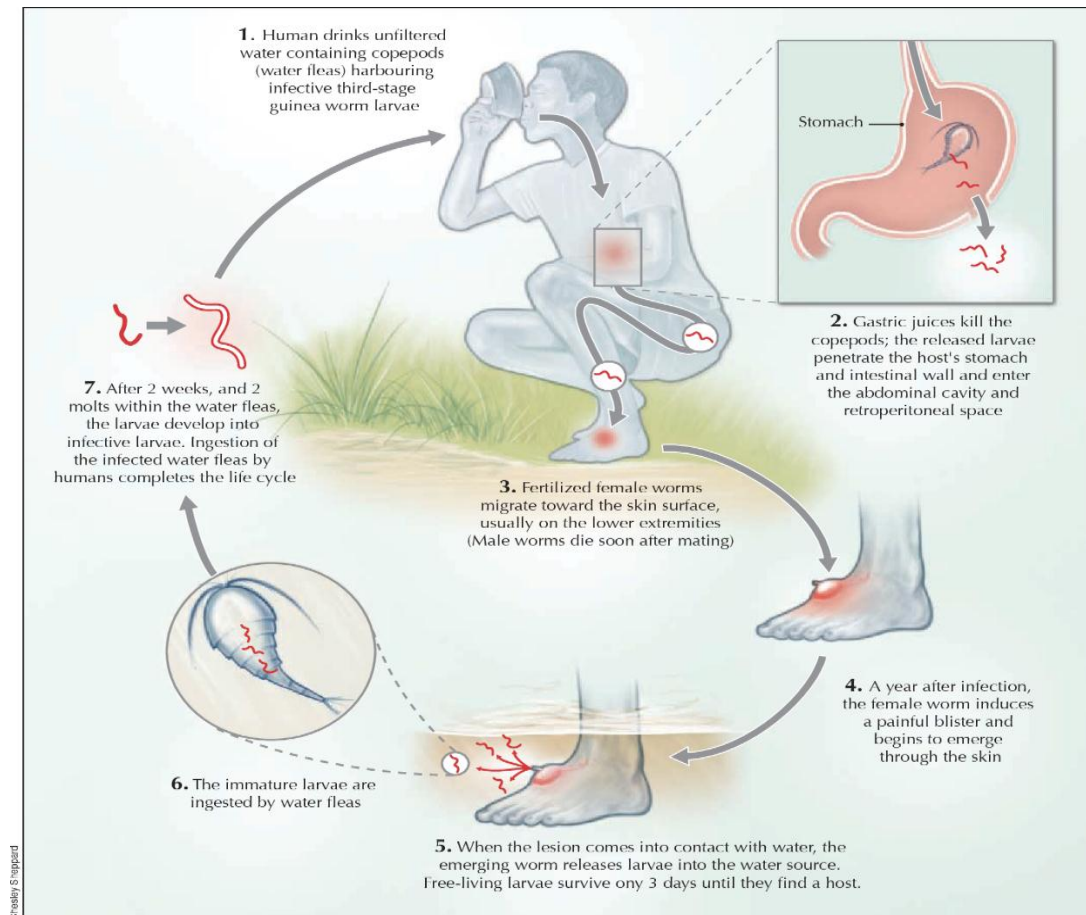
Samprapti, Pathogenesis of the disease:

Tatra shakhasu kupito doshah shotham kritwa visarpavata |

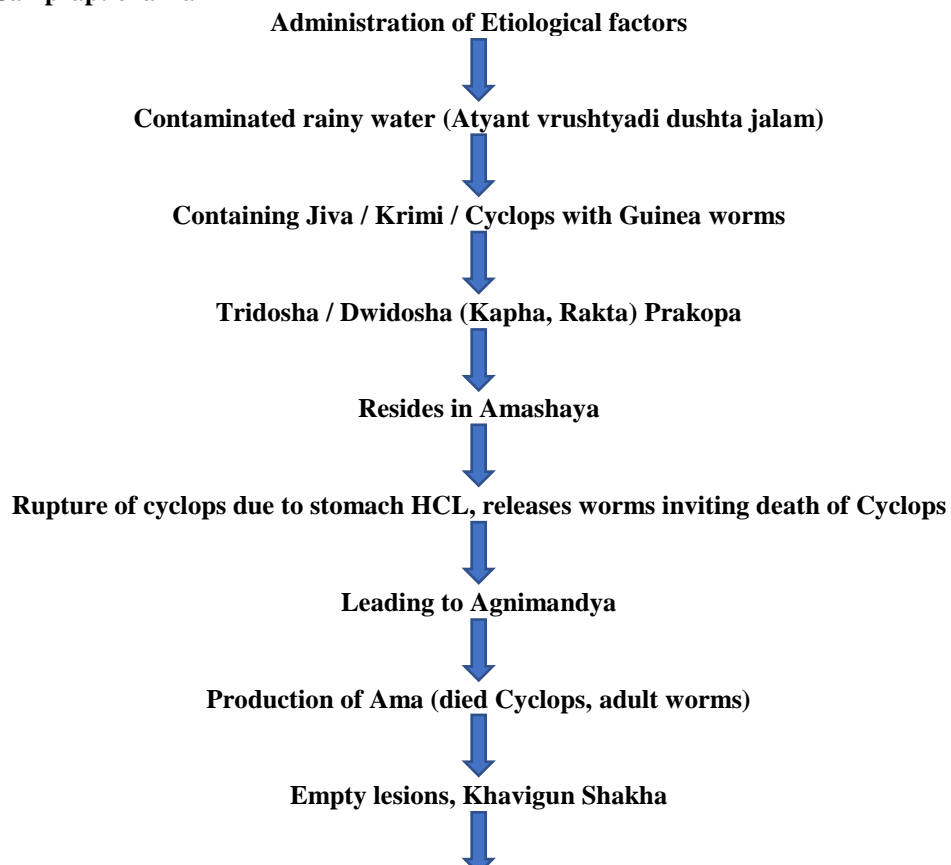
Bhitwa ev tam kshate tatra soshma mamsam vishoshya cha |

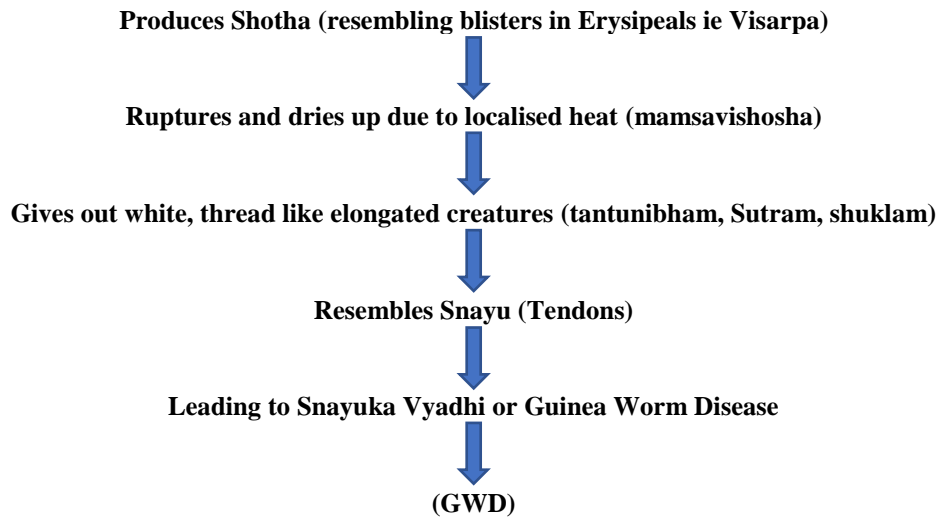
Kuryat tat tantunibham sutram tatpindaihi shuktajaihi |
Shanaihi shanaihi kshatata atichhedat tatkopam awahet |
Tata patat shothashantih syat punah sthanantare bhavet |

Sa snayuhu eti vikhyatah kriyokta atra visarpavata |



Ayurvedokta Sampraptichakra



**Samprapti Ghataka**

- ❑ **Dosha:** Vata, pitta, kapha
- ❑ **Dushya:** Twak, rakta, mamsa dhatus
- ❑ **Agni:** Jatharagni, Agnidushti: Mandagni
- ❑ **Srotas:** Annavaha srotas, Rasavaha srotas, Raktavaha srotas
- ❑ **Srotodushti:** Vimargagamana
- ❑ **Adhishthana:** Shakha
- ❑ **Udbhavasthana:** Amashaya
- ❑ **Vyaktasthana:** Bahu, Pada, Jangha
- ❑ **Rogamarga:** Bahya Rogamarga
- ❑ **Swabhava:** Chirakari
- ❑ **Sadhyaasadhyatwa:** Kricchrasadhya

Rupa (Clinical Presentation)**‘Shotham kritvaa visarpavat’**

Represents as formation of Shotha (swelling) along with Skin Lesion resembling Visarpa (erysipelas).

‘Bhinatti tatksate tatrashosha snayu vishosha cha’

When the blister ruptures, then the heat generated in the lesion dries up to form a snayu (ligament) like worm and forms a Wound.

‘Shanaih shanaih kshataadyati chhedaat kopamupaiti cha’

The manifestation and the pathogenesis of the disease are very slow and worm frequently comes out.

‘Tat paataat shotha shaantihsyaat punaha sthaanaantare bhavet’

On complete exit of worm from body through the wound, shotha (swelling) gets reduced. However it can reoccur in other places.

Vataja Snayuka**Shyavaso ruksho vayuna cha atipidayukto nunam tantukah sa pradishtah |**

In Vata dominant Snayuka, the guinea worm is blackish, dry and very painful.

Pittaja Snayuka**Pittena atho nilima upet pito avashyam dahan anwito drishyate api |**

In Vata dominant Snayuka, the guinea worm is yellowish, dry and with burning.

Kaphaja Snayuka**Sthulah shwetah shleshmana syat gariyan rogo namna snayuko dushrogah |**

In Kapha dominant Snayuka, the guinea worm is whitish, thick and heavy.

Tridoshaja Snayuka**Sa syat doshanam trayen trilingah chetham roгах snayusadnyo ashtadha tu |**

In Tridoshaja dominant Snayuka, the guinea worm is having mixed features.

Upadrava (Complications)**Baahvoryadi pramadena janghayoh trutyati kwachit | sankocham khanjataam chaiva chhinnastantuh karotyasou ||’**

If due to mistake or carelessness, the living worm creeping out of the wound breaks in limbs or leg or calf region then it leads to contracture and lameness.

Laboratory Diagnosis

Patients in an area of endemicity have no doubt about the diagnosis when or just before blister forms from the local itching and then sharp pain and often general allergic symptoms including urticaria follow. Immunodiagnostic methods are not useful in practice because it has been not proved that they can detect prepatent infections, mainly because of the lack of prepatent serum samples.

However antibodies can be detected in patent infections by ELISA or by dot ELISA using whole worm antigens. The most specific reaction appears to be for detection of immunoglobulin G4. This test might be able to detect prepatent infections upto 6 months before emergence, in which case it could have practical importance.

DISCUSSION

Snayuka roga is caused by Snayuka krimi, a kapha-raktaja krimi is vritta (round), tantunibha (thread like) and shwetam (white in colour).

Nidana (cause) of Snayuka roga should be considered as Dushta jalapaana General and specific lakshanas (symptoms) include shotha with visarpa which ruptures and worm comes out; along with ruk (pain), dahana (burning sensation), shakhaasu shotha (swelling in the extremities); finally worm breaks while removing from skin, Sankocha (contractures of limbs) and Khanjatwa (lameness of limbs).

Generally this is a vyadhi of bahya rogamarga and usually manifested at Bahu-Pada-Jangha (extremities).

CONCLUSION

- ❑ The present literature review shows a great similarity in between Snayuka roga and Dracunculiasis. Most description regarding Snayuka roga encounters in Ayurveda literature is analogous with Dracunculiasis.
- ❑ Snayuka roga caused by Snayuka krimi in the light of Ayurvedic texts.
- ❑ Hence Snayuka roga can be correlated with Dracunculiasis explained in modern science, caused by nematode *Dracunculus medinensis*.

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