



Review Article

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AN OVERVIEW ON SNAYUKA ROGA WITH SPECIAL REFERENCE TO DRACUNCULIASIS

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Received on: 24/04/17 Accepted on: 30/05/17

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DOI: 10.7897/2277-4343.083159

ABSTRACT

Snayuka roga is caused by Snayuka Krimi. Snayuka roga in Ayurveda literature is available in Bhavaprakasha, Sharangadhara, Madhava Nidana and Yogaratnakara. This disease is characterised by shotha (swelling), dahana (severe burning sensation), blisters are formed similar to visarpa (Erysipelas) and if the worm crawling out of ulcer breaks further worsens the condition. On complete exit of worm from body through the wound caused by blisters, shotha (swelling) recedes. However, it can reoccur in other places. It resembles with symptoms and presentation of Dracunculiasis in contemporary science. Dracunculiasis is the term used in synonymous with Guinea-worm disease. It is caused by parasitic worm called *Dracunculus medinensis* or also called as "Guinea-worm". This worm is said to be the largest among tissue parasites affecting human beings. The adult female guinea worm, carries about 3 million embryos, measuring approximately 600 to 800 mm in length and diameter of about 2 mm. It migrates through the hosts subcutaneous tissues, causing severe pain along with burning sensation. This worm emerges eventually (from the feet in majority of the cases) causing an intensely severe painful oedema, a blister and finally an ulcer. Hence this is an effort to correlate and understand Snayuka roga caused by Snayuka krimi (worm) explained in Ayurveda with Dracunculiasis (Guinea worm disease).

Keywords: Dracunculiasis, Guinea worm Infestation, Snayuka krimi (worm).

INTRODUCTION

A review of Ayurveda literature on Snayuka shows that it was first quoted by Acharya Sharangadhara as one among twenty types of Krimis (worms), during rogaganana. He further identifies it as kapha-raktaja in origin.¹ Acharya Madhava author of Madhava Nidana is identified as most authentic on concepts related to nidana and he has explained Snayuka nidanam in parishistha.² Snayuka roga nidana, lakshana and chikitsa is elaborated in detail in Bhavaprakasha authored by Acharya Bhavamishra.³ A detailed description of Snayuka roga is also dealt in Yogaratnakara. In addition to above details, Yogaratnakara also classifies Snayuka roga into eight types based on doshic predominance with lakshanas.⁴ This is a unique work by him in comparison to other Acharyas.

Snayuka roga is also called as Snayu roga by Bhavaprakasha.⁵ A overview of presentation and manifestation seen in Snayuka roga resembles with presentation of Dracunculiasis explained in contemporary science. In this article, an attempt is made to compile and explain details found in Ayurveda literature and possibly compare with Dracunculiasis explained in contemporary science.

Dracunculiasis is also called Guinea-worm disease. It is an infection resulted by Guinea worm. Infection is caused by ingestion of contaminated water infected with guinea worm larvae. These larvae get primarily liberated into water from the lesion of individual human host upon immersing leg into water. These larvae thereby contaminate water and reach infective stage once are been ingested by tiny crustaceans or copepods or

water fleas. Through the intake of contaminated water, the individual swallow the infected water fleas. These water fleas/copepods are killed in the stomach followed by liberation of the infective larvae. These larvae penetrate the wall of the intestine and migrate throughout the body. The fertilized female guinea worm measuring 60–100 cm long, migrates under the skin tissues till it reaches its exit point, usually at the lower limbs, further forms a blister or swelling through which it eventually emerges out. Once the worm is infected, it takes 10–14 months to emerge out. Thus, it takes about a year after infection for painful blister to arise, usually in lower leg. From this blister one or more worms can emerge associated with burning sensation. Patients often immerse the infected part of the body into water, to get a cooling effect as a result of which burning sensation is relieved. The worm thus gets an opportunity which favours to release thousands of larvae into the water. This vicious cycle continues again. Due to these blisters patient may find it difficult to walk or work. It is not mandatory for the disease to cause death.⁶

Dracunculus medinensis worm measures about one to two millimetres wide, and an adult guinea female worm measures about 60 to 100 centimetres long (usually males are much shorter about 12–29 mm). Outside the humans, the young guinea worm can survive up to three weeks, during which they have to be ingested by water fleas/copepods to continue further development and life cycle. The larvae inside body of water fleas can survive up to four months. Thus, if the disease has to be seen in an area, it should occur every year in human beings. Diagnosis of the disease is usually be made upon the signs and symptoms seen clinically.⁷

Prevention has an important role, can be achieved through early diagnosis of the disease and avoiding the individual from immersion of wound in drinking water source to decrease further spread of the parasites. Other efforts can be made by improving access to clean water and filtering unclean water, through a clean cloth is a best method. Contaminated drinking water should be treated with a chemical called temefos in order to kill the larva. Till date no medication or vaccine against the disease is found. The worm may be removed slowly over a few weeks by rolling it over a matchstick carefully or else there is every chance of breaking in between and further worsens the condition. The ulcers formed as a result of emerging worm can get infected by proliferation of various bacteria. Pain and little burning sensation can persist for few months after the removal of guinea worm.⁸

DISCUSSION

An analysis of information found in Ayurveda literature regarding Snayuka roga connected to Hetu (cause), Lakshana (symptom) and Samprapti (pathogenesis) along with possible correlation to manifestation seen in Dracunculiasis is discussed.

Consumption of dustajala (contaminated water) should be regarded as nidana (cause). Consumption of dustajala (contaminated water) containing krimi (worm) enters the body and results in dushti (vitiation) of doshas leading to Snayuka roga. It is noteworthy that Dracunculiasis also result from consumption of contaminated water from various water sources.⁹

Shaakhaasu kupito doshaaha¹⁰-Here Shakha refers to Bahya rogamarga- 'Raktadidhatutwak cha' (skin including raktadi dhatus). Dracunculiasis larvae present in water fleas or copodes when ingested through contaminated water by humans, fleas are destroyed in gastrointestinal system and larvae migrate from intestine to different parts of the body. Shakha may also be interpreted as involvement of extremities or limbs. Dracunculiasis parasite *Dracunculus medinensis* usually afflicts lower limbs.¹¹

Shotham krutva visarpavat¹²-means results in shotha similar to visarpa. This phenomena may be understood as the vitiated doshas reside in bahya rogamarga. It results in formation of shotha (swelling) along with formation of skin lesion resembling Visarpa (erysipelas). It is quite interesting to note that in Dracunculiasis female worm burrows through the deeper connective tissue, it takes years to develop completely and later blisters manifest over the skin including the subcutaneous tissues.¹³

Bhinati tatksate tatrashosha snayu vishoshya¹⁴- When the blister ruptures/ bursts, then the heat generated in the wound dries up the snayu (tendon). In Dracunculiasis, a blister is formed at the point of exit. This blister ruptures and milky-white liquid oozes along with worm crawling out. In this stage suffering host individual dips his leg with blister and wound in water to reduce burning sensation and pain.¹⁵

Tantunibham jeevam vruttam shwetadhyutih bahihi¹⁶- Through the ruptured blister white, thread-like, elongated round live creature crawls out. This white live worm resembles tendon and thus named as Snayuka. In Dracunculiasis, morphology of the adult female worm is explained as a long, cylindrical worm with milky white cuticle resembling a long piece of white twine, which has a blunt anterior end and a tapering recurved tail.¹⁷

Shanaihi shanaihi kshataadhyati cchedaat kopamupaiti¹⁸- The worm creeping out of wound due to rupture of blister, if worm breaks then a part of worm is left over inside the lesion leading to exacerbation of symptoms and condition. The same phenomenon is also seen in Dracunculiasis.

Tat paataat shopha shaantihi punaha sthaanantare bhaveth¹⁹-on complete exit of worm from body through the wound caused by blister shotha (swelling) recedes. However it can reoccur in other places. In Dracunculiasis, after exit or removal of worm symptoms are relieved. But during exit or removal if the worm breaks, then lesion flares up and can affect nearest site.²⁰

Baahvoryadi pramadena janghayo trutyati kwachit, sankocham khanjathaam chaiva cchinna tantuhu karotyasaou²¹- The live worm creeping out of the wound if due to mistake or carelessness breaks in limbs or leg or calf region then leads to contracture and lameness.

Samprapti of Snayuka Roga²²

The Prakupita dosha (highly aggravated) either in single or associated with other prakupita doshas or sometimes with all three prakupita dosha, travel to shakha (limbs) through shakha (Raktaditwak cha) and gets located at Khavaigunya (usually limbs) and results in Shotha (swelling) resembling Visarpa (Erysipelas). This shotha (swelling) ruptures / bursts, due to heat generated in the wound dries up the snayu (tendon), and a white, thread-like, elongated creature crawls out. This live worm resembles tendon and thus named as Snayuka. This Snayuka will afflict neighbouring tissues and results in wound formation through which worm crawls out. If this worm breaks then symptoms get further exacerbated. If complete worm comes out of the wound, the condition subsides. However, it may appear in other location. Therapies prescribed for Visarpa (Erysipelas) is advocated in Snayuka. Due to carelessness or if not treated in time or by mistake while extracting the worm, If the worm breaks in affected limb, it may lead to Sankocha (contracture of the limbs) or may become victim of Khanja roga (lameness). This etiopathogenesis of Snayuka roga resembles Dracunculiasis in contemporary science as explained above.

Yogaratanakara classifies Snayuka roga into eight types. In Yogaratanakara eight types of Snayuka is mentioned based on doshic predominancy (Table 1).²³ Same explanation is also found in Madhava nidana.²⁴ This may be interpreted as different stages and symptoms encountered in Dracunculiasis.

Table 1: Types of Snayuka roga and its lakshanas (symptoms)

Type of Snayuka roga	Lakshana
Vataja Snayuka	Shyava, Ruksha, Sarook (blackish red, dry and painful)
Pittaja Snayuka	Neela, Peeta, Dahana/sadaha (bluish yellow associated with burning sensation)
Kaphaja Snayuka	Shweta, Pruthu, Garima (white, thick and heavy)
Dwidoshaja Snayuka	Manifests with dwidoshaja lakshanas.
Raktaja Snayuka	Aaraktakanti, Adhika daha (red and with severe burning sensation)
Tridoshaja Snayuka	Manifests with all tridoshaja lakshanas in combination.

CONCLUSION

Snayuka roga is caused by Snayuka krimi, which is jeeva (live), vrutta (round), tantunibha (thread like) and shwetham (white in color). Hetu (cause) of Snayuka roga should be considered as Dushtambupanajanya (consumption of contaminated water). General lakshanas (symptoms) include sarook (pain), dahana (burning sensation), adhika dahana (severe burning sensation), shakhaasu shotha (swelling in the extremities), finally if left untreated will result in sankocha (contractures of limbs) and khanjatha (Lameness of limbs). In Dracunculiasis the lower extremities are affected with swelling, severe pain along with burning sensation especially when the milky white warm liquid oozes outside and the worm crawls out. This can affect other nearby organs if worm breaks, it afflicts neighbouring tissues. Most description regarding Snayuka roga encounterd in Ayurveda literature is analogous with Dracunculiasis, Hence Snayuka roga can be correlated to Dracunculiasis explained in modern science, caused by nematode *Dracunculus medinensis*.

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Cite this article as:

Ajantha et al. An overview on snayuka roga with special reference to Dracunculiasis. Int. J. Res. Ayurveda Pharm. 2017;8(Suppl 3):1-3 <http://dx.doi.org/10.7897/2277-4343.083159>

Source of support: Nil, Conflict of interest: None Declared

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