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Centipede bite and its management – Over view in Siddha system

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Abstract

Siddha provides several emergency first aid for centipede bite treatment. Centipede bite is quite dangerous and if not treat properly a strong centipede bite can also cause death. Centipedes generally have a single claw at the end of each leg. The appendages of the first body segment have been modified to form large, poisonous fangs that are used to capture living preys during active predation & contain venom glands. Neurotoxic venom is injected through venom duct. It is more neglected concept in context to research so this topic was chosen & entitled as centipede bite and its management overview. It is conceptual type research so *Siddha* texts as well as Non-*Siddha* texts & various articles from journals are followed. The aim of this manuscript was to correlate the concept of centipede bite. All the references were composed, organized & considered to drawn fruitful conclusion.

Keywords: *Siddha*, Centipede, Treatment, Neurotoxic, Management

Introduction

Traditional medicinal systems predominate in modern India: Siddha, Ayurveda, Unani. Siddha medicine occurs in Tamil Nadu and Part of Kerala, Karnataka, Andhra and Sri Lanka. This essay focuses on Siddha medicine mainly urban areas⁵. Siddha provides several emergency first aid for centipede bite treatment. Centipede bite is quite dangerous and if not treat properly a strong centipede bite can also cause death. There are two types of poisons that have been described in the *siddha system*. One of poisons that have plant origin and toxic minerals, metals or metal ores that are found inside the earth. Another one of the venoms of animals like snakes, scorpions, worms, insect's etc³. In ancient time more number of people were affected by animal and insects as they were wandering the forest for their daily routine.

Various types of animal bites are described in Siddha. Description about snake bite, scorpion bite, centipede

bite, spider bite, dog bite are usually seen in our textbook & more focused on it. This may be due to their toxicity fatal for human being. But unfortunately less importance has been given to other insects & arthropods bite. The centipedes are known by various names in India. Pooran in Tamil Nadu and Pazhuthara in Kerala. The fact is that it is a nocturnal arthropod having photonegative behavior that hides in dark places. Centipedes are fast moving, carnivorous, venomous in vertebrates. Centipedes are arthropods belonging to the class Chilopoda of the subphylum Myriapoda & are organic animal irritants⁸.

There are so many research paper published in context to toxicity of poisonous bites. But there are few research papers refound in the centipedes bites. This study was little effort to explain & highlight the centipede bite in siddha perspective literary. By this study now we can explain the centipede bite as *Pooran* in terms of *Siddha*.

Materials and Methods

Textual materials are used for various references in this study. *Siddha* texts followed are Nanju Nool Maruthuvam, Visha Vaithiya Chinthamani, Visha Vaithiya Aaruda Noolgal. Non-Siddha texts include books of forensic medicine & toxicology as well as various articles from journals. All the references were collected, structured & deliberated to drawn prolific conclusion.

Review of literature:

Centipedes are a varied group composed five orders.

Scutigermorpha,
Lithobiomorpha,
Craterostigmomorpha,
colopendromorpha &
Geophilomorpha.

There are more than 20 families approximately 3000 species of centipedes¹⁷.

Scutigermorpha: These are all fast moving species having 15 pairs of long legs & spiracles on the first 7 segments only. They are above ground predators. *Scutigeralongicornis* from India about 5-7cm long is one of the largest species known. Like *scolopendris*, they can autotomize their legs when under danger from predators. In some cases these legs remain to stridulate disturbing the predator from the whole animal.

Lithobiomorpha: This types centipedes live in stones & woods are turned belong to the group known as lithobiids or stone occupants. Small size centipedes is found commonly in temperate & hot areas. They have 20-50 antenatal segments, 15 pairs of legs & only 6 or 7 pairs of spiracles.

Craterostigmomorpha: There is only one genus in this order that occurs only in Australia and appears to represent a half way stage between the *Scolopendrids* & the *Lithobiids*. They have 15 pairs of legs & only 7 sets of spiracles.

Scolopendromorpha: This is large order. All of them have 21 pairs of legs & 17-30 antennal segments. One of the species *scolopendra gigantea* can be over 30 cm in length. Many of the larger *Scolopendrids* are colorful & venomous. Some of them are dangerous. The largest Indian centipede *scolopendra hardwickei* is easily recognizable by its alternate colored bands on tarsal segments & is common in India. The terminal legs are often modified. Some species autotomize some of their legs are often reformed. Some species autotomize some of their legs to distract potential predators. The order as a whole is more frequent in the tropics than in temperate regions.

Geophilomorpha: The centipedes most likely found living in the soil are relatively long & slim are known as geophilids which means ground lover. These are long worm like species adapted to burrowing in the soil. They have 31 to 177 pairs of legs, 14 segments.

Centipedes generally have a single claw at the end of each leg, which they walk or run on except the fast moving *scutigera*. They are plant grade. The appendages of the first body segment have been modified to form large, poisonous fangs that are used to capture living preys during active predation & contain venom glands. Neurotoxic venom is injected through venom duct⁹.

Venom is produced in a gland at the base of forcipules & is injected through ducts when the forcipules are driven into the victim's tissues. In addition to venom some species exude defensive substances from glands found along the body segments. These secretions are usually nontoxic to humans, although at least one species of the genus *Otostigmus* secretes a vesicating substance. Some centipedes secrete phenol, quinone, and cyanogen from the base of their feet which may produce ulcer¹, despite the fact that no centipede shows real danger for human beings the bite of large centipede such as *Scolopendra* can be painful to an adult & dangerous to a small child.

Centipedes mainly use their antennae to seek out their prey. The digestive tract forms a simple tube, with digestive glands attached to the mouth parts. Like insects, centipedes breathe through a tracheal system typically with a single opening or spiracle on each body segment. They excrete waste through a single pair of malpighian tubules. All centipedes are principally nocturnal & are shy of light though some species of *scutigermorpha* are seen actively at times in day time as well. Centipede eats insects, earthworms, spiders, slugs & other small animals. The largest centipede, *scolopendragiga* as eats rats & some small lizards.

Life cycle of centipedes

Centipede reproduction does not involve copulation. Males deposit a spermatophore for the female to take up. In one clade this spermatophore is dropped in a net and the male commences a courtship dance to encourage the female to consume his sperm. In other cases, the males just leave them for the females to find. In temperate areas egg laying take place in spring and summer but in subtropical and tropical areas there appears to be little seasonality to centipede breeding. There are a few known species of parthenogenetic centipedes.

The centipedes lay their eggs singly in holes in the soil, the female fills the holes with soil and leaves them. The number of eggs placed ranges from about

10 to 50. The young usually hatch with only 7 pairs of legs & gain the rest in consecutive sheds. The female in some species stays with the young after they have hatched, protecting them until they are ready to leave. If disturbed the female will either abandon the eggs or eat them, abandoned eggs tend to fall prey to fungi rapidly¹¹. Some species of Scolopendromorpha are matrophagic, meaning that the off spring eat their mother.

Centipede Bite symptoms

Centipedes are considered terrifying by humans due to their dozens of legs moving at the same time and their tendency to dart quickly out of the dusk towards one's feet. The commonest genus encountered in India is scolopendra. The fangs of Centipedes of the genus Scolopendra can penetrate human skin and

deliver venom that produces extreme burning pain, swelling, erythema, gangrene, lymphanginitis and lymphadenopathy with inflammation of skin & subcutaneous tissues, ulceration & also in most cases a localized necrosis takes place².

Some species of centipede can be harmful to humans because of their bite. Although a bite to an adult human is usually very pain full and may cause severe swelling, chills, fever and weakness. Bites can be dangerous to small children and those with allergies to bee stings. The degree of symptoms varies from person to person and bite to bite. Pain and oedema generally resolve naturally over a few days to one week but can continue for up to three weeks. However acute myocardial ischemia's in an adult male as well as death in a 7-year-old girl after a bite to the head have been reported.

Siddha Review of Centipede Bites and Treatment (Internal Uses)

S.No.	Enumeration	Siddha Texts
1	The bark roots of Alincil (<i>Alngium salvifolium</i>) has soaked in goat urine and allow it dried and powdered to give for centipede toxin.	Guna Paada Mooligai ⁷
2	Nagathali chooranam (<i>Opuntia dillenii</i>) 10gm once a day for 6 days and cure for centipede poison.	Visa Murivu Vaithyam ⁶
3	Povanthippalam-2, Pepper-equal weight to the right both grind with mix and eat well.	Sarabendrara Vaithiya Muraigal ¹⁶
4	Aavuri (<i>Indigo feratinctoria</i>) juice has mixed with pepper powder and have taken it internally the toxin will have cured.	Visa Vaithya Chinthamani ⁶
5	The preparation of Uppu Chenduram has been given with its indication for centipede poison.	Guna Padam Thathu Jeevam ⁴
6	The preparation of the Vellarugu Chooranam has been given with its indication for centipede poison.	Visa Murivu Vaithyam ⁶
7	<i>Betal</i> leaf and dried <i>Areca-nut</i> and chewed and blown on the bite site.	Siddha Toxicology ³
8	The leaves of <i>Eclipta prostrata</i> has crushed and mixed with white coat milk and then intake cure for centipede poison.	Visa Murivu Vaithyam ⁶
9	The leaves of Vanni - ½ has crushed and Nagathali root - ¼ have grind with mix and eat well.	Visa vaithiya chinthamani ⁶
10	The fresh leaves following plant are boiled and applied the body <i>Cephalandra indica</i> , <i>Pipper betale</i> , <i>Gossypiumindicum</i> , <i>Glucosmis pentaphylla</i> , <i>Crdiospermum halicacabum</i>	Siddha Toxicology ³
11	<i>Pipper longum</i> and <i>Boerhaavia diffusa</i> root grind with mix the hot water to give for 3 day centipede bite.	Visa Vaithiya Aaruda Noolkal ¹⁰
12	Vasambu (<i>Acorus calamus</i>) flower is grind and mix with water and take 465gm as internally and inhale it for recovery of centipede bite.	Anubava Vaithiyam ¹³

S.No.	Enumeration	Siddha Texts
1	The leaves of <i>Acalypha indica</i> (Kuppaimani) has crushed and extract the juice have applied on bited site to recover centipedes toxin.	Thanjai Raja Vaithya Chinthamani ¹⁸
2	Equal weight of the root of the following are ground well and made in to paste <i>Solanum trilobatum</i> , <i>Eugenia jambolana</i> , <i>Acacia pennata</i> .	Siddha Toxicology ³
3	<i>Acalypha indica</i> along with it salt, turmeric grind well and make it as paste and apply it on bited site as externally application.	Anubava Vaithiyam ¹³
4	The leaves of <i>Acalypha indica</i> have grinded with gel of <i>Aloe vera</i> and applied this mixture as externally on bited site.	Siddha system of Toxicology ³
5	Mulli keerai has grinded with lemon juice and make it as paste applied it as on bited site.	Anubava Vaithiyam ¹³
6	<i>Acalypha indica</i> leaf extract and Chunnampu (Calcium carbonate) mixture as externally bited site.	Anubava Vaithiyam ¹³

Discussion

Centipedes, bees, wasps, scorpions and other biting arthropods cause human fatalities but these are not often characterized as attacks. It may difficult to characterize some of these encounters as offensive or defensive. As per Siddha Centipede bite causes pain, swelling, redness locally & Same description is found in the centipede bite i.e. extreme burning pain, swelling, erythema, gangrene, lymphanginitis and lymphadenopathy with inflammation of skin & subcutaneous tissues, ulceration. Systemically centipede bite produces burning sensation in heart region, sweating, fainting & centipede bite may produces systemic features like nervousness, faintness, vomiting, headache, convulsions, irregular pulse & cardiac arrhythmias, rhabdomyolysis & renal failure in rare cases. As per treatment is concerned Siddha described mainly local application. Contemporary science also mainly focused on local treatment and symptom wise management

Conclusion

Recently, the world health organization estimated that 80% people world wide rely on herbal medicine. The most ancient system of medicine Siddha has described a number of medicines for the cure of centipede bites but no sufficient explanation of their mode of action was available in other system of medicine. Thus these drugs are better alternative for centipede envenomation. Still lots of work has to be done, there are still number of drugs and combinations of drugs which are mentioned in Siddha text to have anti-venomous properties. These drugs need to be identified and research work should be done on each plant and combinations also so that alternative drug for anti-centipedes venom will put forward.

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