

TOXICITY OF SPIDER POISONING –A LITERARY REVIEW

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Article Received on 07/11/2021

Article Revised on 27/11/2021

Article Accepted on 17/12/2021

ABSTRACT

Spiders belong to the phylum Arthropoda and class Arachnida. More than thirty-four thousand species in hundred families. All spiders are poisonous. But the venom of only few species is dangerous to man. The biting apparatus of spider consists of the two chelicerae and the venom sacs in which the poison is produced. The venom is usually a colorless liquid having consistency of light oil. In process of biting the spider applies its sharp, spin-like fangs into the victim's body and makes 2 separate punctures, at the same time. Spider poison seems to be complex nature and produces neurotoxic and hemotoxic symptoms. In most instances, the bite is followed by local symptoms at the site of punctures- burning, throbbing and painful sensation, numbness, stiffness and sometimes a very slight swelling. This symptom usually persists only for a few minutes or a few hours. Some poison contains haemotoxins that destroy the cells in the vicinity of the wound causing necrosis and gangrene. The toxic principles are cytotoxic, hemotoxic, and neurotoxic. The species causing severe poisoning are black widow spiders (*Latrodectus mactans*), brown spiders (*Dugesiella*), and tarantula (*Lycosa* species). The toxic principle of black widow spider is neurotoxic.

KEYWORDS: Spider, neurotoxin, black spider, envenomation.**INTRODUCTION**

More than 20000 species of spiders are identified and classified into 60 families. Most of them are not dangerous. The appearance of many of the larger species inspires terror or disgust to people. Black widows coming under *Latrodectus mactans*, spiders coming under *Loxosceles* are the deadly poisonous. *Lycosa raptoria* species called tarantula also cause severe envenomation to man. The venom contains several neurotoxins (More in black widow) and vascular toxins and several necrolytic enzymes. These cause severe neurological symptoms and destroy the cell membrane, blood vessels and leads to gangrene within 24 hours. Most of them contain some chemical and irrational substance in their body which will cause cutaneous irritation and tissue death.

Origin of Spider (Lootaa utpatti-According to ved)

Drops of sweat on the forehead of Vasishtha, angered by Vishwamitra, which fall on the cut grass transformed into Lootaa. Some others say that the sparks of fire, which sprang out from the bodies of asuras during the burning of the Khaad'ava forest, became Lootaa. Yet others say that blebs (vesicles) that developed on the body by the ingestion of contaminated poisonous food are known as

Lootaa.

Ayurveda and Spider

Sushruta describes 16 species of lootaa while Vaagbhat'a says about 28 varieties. Vaagbhat'a classifies as vaatika, paittika kaphaja and saannipaatika according to the symptoms seen in man. It also classified as kruchara saadhya (severe) and asaadhya (fatal). It was said that the lootaa visha is very dangerous and difficult to diagnose and also very difficult to cure. The dosh aavastha of lootaa is said to be pittakaphaadhika. That means pitta kaphalakshanas will be predominant. Burning, redness, pus, etc will have there. So clinically the lesion will be vesiculo bullus appearance.

Classification of spiders (Lootaas)

Spiders are classified as follows-

- 1) According to prognosis
 - a) Krucharasaadhyah (Cured with difficulty) — Ekadoshaja
 - b) Asaadhya (Incurable)—Tridoshaja
- 2) According to the potency of poison (VishaVeerya)
 - a) Teekshna (Highly Potent)
 - b) Madhya (Medium)
 - c) Mandala (Low potency)
- 3) According to the predominance of humors (Doshas)
 - a) Vaatika — 7
 - b) Paittika — 7
 - c) Kaphaja — 7
 - d) Saannipaatika — 7

Classification of lootaa according to dosha

Agneya luta(pitta)	Saumya luta (kapha)	Vayavaya(vata)	Misraluta (sannipataja)
Kapila	Paanduraa	Kumudaa	Kaakanda
Agnimukhi	Raktapadikaa	Alavisa	Enapadi
Pitaa	Bringaa	Raktaa	Laajaa
Padhma	Pingaa	Citra	Vaidehi
Mutraa	Trimandalaa	Santaa	Jaalani
Sitaa	Puti	Nimechaka	Maalaaguna
Asitaa	Vira	kasanaa	Suvarnaa

Lootaa Visha Adhishtan according to different acharya

Sr No.	Text	Adhishtan no.	Name of adhishtan
1	Susruta samhita	07	Lala, Nakha, Mutra, Damstra, Raja, Purisha, Sukra
2	Astanga sangrah	08	Lala, Nakha, Mutra, Damstra, Raja, Purisha, Sukra, swasa
3	Astanga hridaya	08	Lala, Nakha, Mutra, Damstra, Raja, Purisha, Sukra, swasa

Diagnosis of spider poisoning

The diagnosis of spider poisoning is important it should be based on symptoms specific to poisonous bites like itching, swelling and pain. Doubt may occur whether the bite is poisonous or non-poisonous. In that case medicines a ga in s t po i son s t h a t a re harmless should be used. The antidotes used in Ayurveda (Agada) for poison bites are not to be used in non-poisonous cases, as it will cause ill effects.

Prognosis of spider poisoning

The poison of spiders which are acute and violently. Venomous proves fatal in the course of a week. That of a moderately poisonous one would take a little more time in order to prove fatal, while a bite by mild poisonousness brings death within a fortnight.

Day wise clinical features of Lootaa vish

Day	Sushruta samhita	Astanga hridaya
1 st day	Slight itching sensation at the site of bite, kotha (urticaria), indistinctness of colour.	Appears like a mark made by needle without any manifestation of colour, it is very unsteady with mild itching and pain
2 nd day	Site of bite becomes swollen at the end and depressed in the center and distinct feature of bite.	Elevation at the edge or gets covered by numerous eruptions, with well manifested color, depressed in the center, has itching and appear like a tumor.
3 rd day	Features are more clearly seen	Fever, horripilation, red coloured saucer shaped rashes with severe pricking pain and bleeding appear at the hair follicle.
4 th day	Poison is aggravated	Profound swelling, great heat, dyspnea and dizziness.
5 th day	Disorders peculiar to poison aggravated Condition.	Gives rise many symptoms of Poisoning.
6 th day	Spreads throughout the body including marma (vital spots).	It spreads to the vital spots.
7 th day	Spread all over the body and extremely aggravated and proves fatal.	It destroys the life

Name of sadhya asadhya Lootaa (spider)

Krichha asadhya (curable with difficulty) -8 in number - 1.Trimandala, 2.Sweta, 3.Kapila, 4.Pitika, 5.Alavisa, 6.Mutravisa, 7.Rakta, 8.Kasana.

Assadhya (incurable)-8 in number- 1.Sauvarnika, 2.Lajavarni, 3.Jalni, 4.Anipadi, 5.Krishna, 6. Agnivarna, 7. Kakanda, 8.Malaguna.

Features of krichha sadhya Lootaa - Headache, itching and pain at site of bite and disorders peculiar to the aggravated vayu and kapha.

Features of asadhya type of Lootaa – Putrefaction about the site of the bite, bleeding, fever, burning sensation, diarrhea and disorders peculiar to the connected effect of the three deranged doses.

Treatment of spider poisoning**General Treatment**

- Incision (chhedana)
- Cautery (dahan Karma)
- Coating (Lepana)
- Seka
- Blood letting
- Vamana
- Virechana

For external application

- 1) Turmeric and scared basil
- 2) Rock salt and honey
- 3) Root of scared basil with milk
- 4) Roots of Albizialebeck and Indian Indigo with juice of their leaves.
- 5) For boiling water, fresh turmeric and leaves of vortexnegundo, Indian Indigo and Abreus precarious.

For internal use

- 1) Turmeric and scared basil with milk
- 2) Neeleetulasyaadi devotion (Jyotsnikaa)
- 3) Lodhraadilehya (KriyaKoumudee)
- 4) Kat'abheemoolaadighr'ita (A.S.U. 44/78-79)

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