

DARVIKARA VISHA AND ITS TREATMENT WITH SPECIAL REFERENCE TO KERALEEYA VISHA CHIKITSA: A REVIEW

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ABSTRACT

There are more than 2000 species of snake in the world, and about 216 species in India, of which 52 are venomous¹. Cobra is responsible for large number of snake bite casualties reaching 65% of envenomation in the country. The appearance and symptoms explained in the classical texts for *darvikasarpa* similar to cobra. There are 26 types of *darvikara* (Cobra) variety explained in classics². The main signs and symptoms in *darvikara* bite are *twak* (skin), *nayana* (eye), *nakha* (nail), *vadana* (face), *mootra* (urine), *purisha* (faeces), *damsha* (bite site) become *Krishna* (black) in colour., *sandhivedana* (joint pain), *katiprushtagreevadhurbalya* (weakness in waist, back and neck), *jrumbha* (yawning), *vepathu* (trembling), *swarasadha* (hoarseness of voice), *jadatha* (dullness), *sushkaudgara* (dry eructation), *kasa* (cough), *shwasa* (dyspnoea), *hikka* (hiccup), *urdhagamana* of *vayu* (upward movement of *vayu*), *laalasrava*, (salivation), *phenagamana* (froth coming from mouth), *srothoavarodha* (obstruction of channels) and different type of *vatika* pain³. *Darvikara* bite is *vata* predominant, so *vata shamaka* drugs should be used in this condition⁴. Many treatment modalities explained in *keraleeya* text books for *darvikara* (cobra) bite as *nasya*, *anjana*, *pana*, *lepa* etc. Based on the signs and symptoms appropriate treatment should be selected according to *yukthi*.

INTRODUCTION

Snakes are the most feared venomous animals in the world due to their induced morbidity and mortality worldwide which represent 5,400,000 bites over 2,500,000 fatalities followed by about 125,000 deaths. However, some retrospective studies reported that the incidence, mortality and long term disability due to snakebites were shown to be much

higher. They are poikilothermic and carnivorous reptiles. India records a staggering 10,000 to 15,000 death annually from snake bite. While many of this death occur due to envenomation, a significant few result from terror following a non-lethal venomous or non-venomous snake bite⁵. Snake bite is more prevalent in rural than urban areas, commonly seen

in summer. Most of the bite in tropical countries are on lower extremities since the victim are bitten by treading on or near the snake, while in non-tropical countries most bites are on fingers and hands because of deliberate handling of snake⁶.

Cobra bite (*DarvikaraDashta*)

Cobras belong to the sub-group of snakes known as elapids; there are over 270 species of cobras and their relatives are found in the world⁷. There are 26 types *darvikara* snake explained in our classics⁸.

Physical appearance

The common cobra is usually brown or black in colour. It is a distinctive snake growing up to 5 to 6 feet in length, with a distensible neck that can be expanded into a hood. On the dorsal side of the hood there may be a monocellate or binocellate mark. The hood markings distinguish the cobra from other species and its habit of rearing up, when alarmed make it distinctive but not definitive. On the ventral surface of the hood are faint, broad, black, stripes above which are two dark spots that extend over 3-4 scales. The head is small and pupil is round. The most important distinguishing feature of this snake is the fact that the 3rd supra-labial shield touches the eye and nose shield. Also a small wedge shaped scale is present between the 4th and 5th infra-labials. Another important feature is said to be the presence of 3 small scales just behind each eye⁹. According to classics snake which have mark of *radhanga* (wheel), *langala* (plough), *swasthika*, hook (angu)/goad of the elephant on their hood which move *sheeghragati* (very fast) are known as *darvikara*¹⁰.

Kingcobra

This species is the world's longest venomous snake with a maximum length (including tail)

of 18.5 to 18.8 ft (5.6 to 5.7 m). The king cobra is a dangerous snake that has a fearsome reputation in its range, although it typically avoids confrontation with humans when possible. King cobras are generally larger than other cobras; the hood of the king cobra is narrower and longer. A key to identification, clearly visible on the head, is the presence of a pair of large scales known as occipitals, located at the back of the top of the head. These are behind the usual "nine-plate" arrangement typical to the king cobra. A king cobra, receives chemical information via its forked tongue which picks up scent particles and transfers them to a special sensory receptor (Jacobson's organ) located in the roof of its mouth. King cobras are able to detect moving prey almost 100 m (330 ft) away¹¹.

The Indian cobra

It varies tremendously in colour and pattern throughout its range. The ventral scales or the underside colouration of this species can be grey, yellow, tan, brown, reddish or black. Dorsal scale of the Indian cobra may have a hood mark or colour patterns. The most common visible pattern is a posteriorly convex light band at the level of the 20th to 25th ventrals. Salt-and-pepper speckles, especially in adult specimens, are seen on the dorsal scales. The Indian cobra is a moderately sized, heavy bodied species. This cobra species can easily be identified by its relatively large and quite impressive hood, which it expands when threatened. This species has a head which is elliptical, depressed, and very slightly distinct from neck. The snout is short and rounded with large nostrils. The eyes are medium in size and the pupils are round. The majority of adult specimen range from 1 to 1.5 meters (3.3 to 4.9 ft.) in length¹².

Habitat

They are found mainly in grassy plains, fields, mountainous regions. They usually reside

among piles of bricks, termite mounds, tangles of root at the base of trees etc. The cobra is diurnal but bites from the cobras occur during both day and night¹³.

Properties of DarvikaraSarpa

Darvikara has *rooksha* (dry), *katu* (pungent) property, these snakes are vata predominant, they become loaded with more poison during their youth(*tarunya*),and in *varsharthu* (rainy season). Its *praharakala* is day time¹⁴.

Properties of venom

An elapid's venom contains postsynaptic neurotoxins that spread rapidly in its victim's bloodstream, causing respiratory failure and eventually death. Cobra venom is an example of a molecule that prohibits the interaction of acetylcholine molecules (transmitted from nerve endings surrounding the diaphragm muscle) with the receptor sites on the diaphragm muscle. The venom disrupts the neuromuscular junctions involved in human respiration by reacting with the receptor sites in place of the acetylcholine molecules, thus blocking the receptor sites¹⁵. There are approximately 20 types of toxic enzymes found in snake poisons throughout the world known to man. Each of these enzymes has its own special function. The enzymes in the snake venom can speed up chemical reaction going on in an organism so much, that they can kill the organism. The enzymes are Proteolytic enzymes, Phosphomonoesterase, Arginine ester hydrolyase, Phosphodiesterase, Thrombin-like enzyme, Acetylcholinesterase, Collagenase, RNase, Hyaluronidase. DNase, Phospholipase A2 (A), 5'-Nucleotidase, Phospholipase B, L-Amino acid oxidase, Phospholipase C, Lactate dehydrogenase, Adenosine triphosphatase¹⁶.

Cholinesterase: Attacks the nervous system, relaxing muscles to the point where the victim has very little control.

Amino acidoxidase: plays a part in digestion and the triggering of other enzymes

Adenosine triphosphates: believed to be one of the central agents resulting in the shock of the victim and immobilizing smaller prey.

Peptide bradykininpotentiators: Greatly enhance one of the body's natural responses to injury (dilation and increased permeability of blood vessels, stimulation of pain receptors, and contraction of some smooth muscles), thereby enhancing diffusion of venom in the bloodstream and increasing bleeding

Polypeptide toxins: Directly disrupt nerve-impulse transmission, usually causing heart or respiratory failure

Proteolytic enzymes: Catalyse the breakdown of structural components of tissues.

Hyaluronidases: Catalyse reactions that break mucopolysaccharide links in connective tissues, thereby enhancing diffusion of venom.

Proteases: Catalyse reactions that disrupt protein peptide bonds in tissues, causing blood-vessel wall damage and hemorrhage and muscle-fibre deterioration.

Phospholipases: Catalyses reactions that harm musculature and nerves

Nerve growth factor (an enzyme) - Disrupt normal cellular function, causing death of the affected cells.

Glycoproteins: Suppress normal immune response of tissues through anti-complementary reactions.

Biogenic amines: Disrupt normal transmission of nerve impulses and other types of signaling between cells.

Cholinesterase: It causesneuro muscular block.

Phospholipase: Early penetration of the venom.

Hyaluronidase: Hyaluronidase is involved in the inflammatory response of venom, with the softening of tissue and the facilitation of flow of the other substances.

Proteases: Catalysereactions that disrupt protein peptide bonds in tissues, causing blood-vessel wall damage and hemorrhaging and muscle-fibre deterioration

Action of visha according to Ayurveda

The *visha* enter the body and vitiate *raktha* (blood) first then *kapha*, *pitta*, *vata* along with their respective seat then invades the *hrudaya* (heart) leads to death of the body¹⁷.

Types of Sarpadamsha:

According to Sushruta¹⁸

- *Sarpita*-deep punctured
- *Radita*-superficial punctured with less venom injected
- *Nirvisha*-non poisonous

According to Vagbhata¹⁹

1. *Tundahata*-stained by Saliva
2. *Vyalida*-one or two bite marks & no bleeding
3. *Vyalupta*-one or two bite marks & bleeding
4. *Dashtaka*-three marks accompanied with tearing of muscles
5. *Dashtanipidita*-four bite marks

Causes for Snakebite:

Reasons for Sarpadamsha

They are *Bhaya* (fear), *Krodha* (anger), *Aaharartha* (for food), *Padasparsha* (touch by foot), *Ativishat* (excess amount of poison), *Vairadhya*, *Papa karma*, *Deva-rishi-yama kopa*²⁰.

Signs and symptoms²¹:

- **Local symptoms** start within 6-8 minutes. A small reddish wheal develops at the site of bite. Bitten area is tender with burning pain. They can be severely swollen and can bleed and blister.
- **Nervous system effects:** The effect on the nervous system can be experienced locally close to the bite area or affect the nervous system directly stopping the breathing muscles, resulting in death

without treatment. Initially, victims may have vision problems, speaking and breathing trouble, and numbness close to or distant to the bite site.

- **Muscle death:** muscle of the extremities become weak. Paralysis start in the lower limb, which ascends gradually affecting the respiratory muscles, including the diaphragm and respiratory muscle paralysis is indicated by poor neck lift, falling single breath count.
- **Eyes:** Spitting cobras can actually eject their venom quite accurately into the eyes of their victims, resulting in direct eye pain and damage.

According to Susruta

In Darvikarabite *twak* (skin), *nayana* (eye), *nakha* (nail), *vadana* (face), *mootra* (urine), *purisha* (faeces), *damsha* (bite site) become *Krishna* (black) in colour, *Gurutha* of the *shiras* (heaviness of head), *sandhivedana* (joint pain), *katiprushtagreevadourbalya* (weakness in waist, back and neck), *jrumbha* (yawning), *vepathu* (trembling), *swarasadha* (hoarseness of voice), *jadatha* (dullness), *sushkaudgara* (dry eructation), *kasa* (cough), *swasa* (dyspnea), *hikka* (hic cough), *urdhagamana* of *vayu* (upward movement of *vayu*), *soola* (pain), *udveshtana* (cramps), *trushna*, (thirst), *laalasrava* (salivation), *phenagamana* (froth coming from mouth), *srothoavarodha* (obstruction of channels) and different type of *vatika* pain²².

Veganusaralakshana

In the first stage of darvikara bite the blood becomes *shyava* (blue) in colour, because of that there is blue colour of the mouth, etc. and the person feels as though insects are crawling on his body. In the second stage there is formation of *granthi* (enlarged glands). In the third stage there is *moordnigaurava* (feeling of

heaviness of head), *drikrodha* (obstruction of vision), *damshavikleda* (moistness at the site of bite). In the fourth stage there is *vami*(vomiting), *sandhivishlesha* (looseness of joint) and *tandra* (stupor).In the fifth stage *parvabhedana* (cutting pain in the joints), *daha* (burning sensation), *hidhma* (hiccough). In the sixth stage there is *hruthpeeda* (pain in the region of heart), *gathragourava* (heaviness of the body), *moorcha* (fainting), *avipaka*(indigestion) and *atisara* (diarrhea). In the seventh stage the poison reaches the semen produces distortions of the shoulder, back, waist and loss of all activities²³.

Diagnosis

VishahariLehya

This Lehya is very useful in diagnosing venomous and non-venomous snake bites. 250g of seeds of *Luffaamara* ground in the juice of about 500 betel leaves should be tied in a cloth and hung on a hook. The juice flowing down is collected and an equal quantity of old neem oil is to be added. One-fifth quantity (by weight) each of purified mercury and purified sulphur is added to it, mixed in a mortar and water is removed by evaporation and kept in a glass jar. 50-100mg of lehya spread on a betel leaf is given to the victim. If the victim tastes *amla Rasa* then it is inferred to be bitten by *MandaliSarpa* (Viper bite). Similarly, *katu Rasa* inferred as bitten by *darvikaraSarpa* (cobra), *madhura Rasa* by *RajimanthaSarpa* (krait) and *Kashaya Rasa* then there is slight envenomation²⁴.

Treatment of Darvikaravisha

Ashtanga hrdaya²⁵

1. *Sindhuvaramoola* (*Vitexnigundo*) and *swethagirikarnika* juice should be consumed.
2. *Kushta* (*Saussuralappa*) mixed with honey should be used as nasal drops

3. *Tanduleeyaka* (*Achyranthus sp.*), *kinihi* (*Achyranthus aspera*), *matulunga* (citrus), *shelu* (*Permeliperlata*)

Charaka samhitha²⁶

1. *Sindhuvaramoola* (*Vitexnigundo*) and *swethagirikarnika* should be consumed.
2. *Kushta* (*Saussuralappa*) mixed with honey should be used as nasal drops

Treatment mentioned in Keraleeyavishachikitsa

Visha Vaidhya Jyothsnika

Lepa yoga²⁷

1. External application of *Hingu* (*Ferula narthex*), *Maricha* (*Piper nigrum*) and *Vacha* (*Acorus calamus*) ground in the juice of *Kimsuka* (*Butea monosperma*) on the bite mark subside cobra bite
2. *Lepana* with *Tankana* (borax) and *Gruhadhooma* (soot) ground in urine
3. Paste of dried leaves of *Sivamalli* (*Aristolochia indica*) and *Hingu* (*Ferula narthex*)
4. *Lepana* with root of *mathighathi* (*Datura metal*) and *Hingu* (*Ferula narthex*) with human urine

Pana yoga²⁸

1. Internal administration of *Vyosha* (*Piper longum*, *Piper nigrum*, *Zingiber officinale*) with water nullifies all visha.
2. Intake of *Ashwaganda* (*Withania somnifera*) with pure water
3. The root of *Nandyarvattam* (*Tuber nalmontana* divaricate) and *Kola* (*Piper cubeta*)
4. Oral administration of root of *Sarngestam* (*Trichosanthes stricus pida*) and *Maricha* (*Piper nigrum*)

5. Mixed paste of Guduchi (*Tinosporacordifolia*) and Kola (*Piper cubeta*).

Nasyaanjanadi prayoga²⁹

1. Saindhava ground in the juice of Tambulapatra (*Piper betel*), and Dhaturapatra (*Daturametel*) is used as nasya in unconscious poisoned person.
2. Nasya or anjana with Gunjabeeja (seed of *Abrusprecatorius*), Maricha (*Piper nigrum*) and seeds of Bakula (*Mimusopseleugi*) ground in human urine or juice of Dronapushpi (*Leucasaspera*)
3. Nasya with swarasa of Tulasi(*Ocimum sanctum*), Dronapushpi (*Leucasaspera*) with Maricha (*Pippernigrum*)
4. Nasya with swarasa of Bhringaraja (*Eclipta alba*) and Maricha (*Piper nigrum*)

VishaVaidhya Sara Samuchaya

1. Tanka (borax) is immersed in the resin of Arka (*Calotropisgigantea*), Snuhi (*Euphorbia nerifolia*) for seven days. This tanka is given internally or used as nasya or lepana³⁰
2. Peeled Rasona (*Allium sativum*), Sunthi (*Zingiberofficianale*), Maricha (*Piper nigrum*), Pippali (*Piper longum*), Hingu (*Fe-rula nartex*) are kept in Arkaksheera (*Calotropisprocera*). These drugs should be brought into use for nasya and panaand it alleviatesdarvikara visha³¹.
3. Saindhava (rock salt) triturated with swarasa of Datura (*Datura metal*) and Nagavalli (*Piperbetle*).This is used for nasya³².
4. Maricha (*Piper nigrum*) is given bhavana for 21 days in the extract of Shirisha (*Al-bezialebbeck*) flower. This Marichais used for nasya, anjana etc³³.

5. Arkapatra and Saindhavalavana are triturated in Chandanavari (*Santalum album*) and is applied all over the body³⁴.

Prayoga Samuchchaya³⁵

In this book treatment of different type of *Darvikarasarpa* is explained

1. In Krishna visha there is blackish discoloration of the skin, so lepa with Kayyonni (*Eclipta alba*)should be done.
2. There is blackish colour of nails in case of swetha bite. So, lepa of leaf juice of Arka can be done.
3. There is blackish discoloration of faeces in case of sankapaalanlepa of Sirisha (*Albe-zialebbeck*) is effective in this condition.
4. Pana of Ashwaganda (*Withaniasomnifera*) with Kanji in case of blackish discoloration of Dantain Valaahakan
5. Punarnava (*Boerhaviadiffusa*)lepa in case of kakodharan
6. Ushira (*Vetiverazizanooides*),Chandana (*Santalum album*) jalapaana in case of froth vomitinginmahakarnavisha
7. Punarnava, Gokshura (*Tribulusterestris*) lepa and paana in case of semisolid blackish discharge in maha Padma bite
8. Onion paste application in sarvanga in case of weakness of the neck in kalastakan bite
9. Kshara of Haridra (*Curcuma longa*) leaf and intake of Cow's urine in caserookshatha ofanga ingirikarnan bite.
10. Lepa or application of Trikatu in case of swedana of anga in vatakarnan bite
11. Sunthilepa and paanain cheerakannan bite
12. Trikatunasya in case of badhiratha (deafness) inmahachardhan bite
13. Chitrakalepa (*Plumbagozeylanica*) in case of itching in kandinasan bite.

14. Sunthi, pippalilepa should be done in case of blackish discoloration of urine in mahasarpa bite

KriyaKaumadi

1. Sunthi (*Zingiberofficianale*), Lashuna (*Allium sativum*), Hingu (*Ferula narthex*) macerated with Arkapatra (*Calotropis gigantea*) rasa can be used as nasya, lepa and paana³⁶.
2. In *karimoorkha* (Dark cobra) *vishapunar-nava* (*Boerhaviadiffusa*) mixed with milk can be applied as lepa³⁷.
3. Pippali powder (*Piper longum*) can be mixed with honey should be given in case of chardhi (vomiting) in moorkha visha³⁸.
4. Bark of Shigru (*Moringaoleifera*), Dronapushpi (*Leucusaspera*), Nirgundi (*Vitex-nigundo*) with ginger juice can be given as nasya³⁹.
5. Dhara with Panchagavya, Grtha, Kanjika, Kerathailam (coconut oil) or with Goomutra (Cow's urine)⁴⁰.
6. Saindhava (rock salt), Vyosha (*Piper longum*, *Piper nigrum*, *Zingiberofficianale*), Nara mootra (Human's urine) lepa⁴¹.
7. Neelimoolalepa (*Indigoferatinctoria*)⁴².
- *Neervalathailam*, *Mayurandagulika*, *Ga-ralaghagutika*, *Agasthyakuzhambu* these are the preparation mentioned in *Kriya-kaumadhi* for cobra bite⁴³.

Veganusarachikitsaofdarvikaravisha

In the first stage of poisoning from the bite of *darvikara* snake, blood should be let out and then agada mixed with honey and ghee should be given to drink immediately. In the second stage *vamana* (emesis) therapy should be administered and *agada* should be taken. In the third stage application of anjana (collyrium) and *nasya* (nasal medication) should be

adopted. In the fourth stage *vamana* (emesis) should be administered and take *yavagu* also. In the fifth stage and sixth stage the patient should be sprinkled and bathed with cold water, administered a strong emetic and made to drink and *yavagu* prepared with anti-poisonous drugs. In the seventh stage strong *agada* should be used, so also collyrium and nasal medication, a deep incision should be made on the head and a piece of muscle or skin containing blood should be placed over the wound⁴⁴.

DISCUSSION

Visha Chikitsa has been explained since Vedas. By knowing the importance of VishaChikitsa for ManAcharyas have included this as one among the Ashtanga of Ayurveda i.e., Eight Folds of Ayurveda⁴⁵. The *rookshaguna* (roughness) of visha vitiates vatadosha in the body, *ushnaguna* causes *raktha pitta prakopa*, *buddhi* (intellect), *marma* (vital organs) which is affected by *theekshnaguna* of visha, due to *sooshmaguna* it spreads the body very fast, *dosha*, *dhatu* and mala *naashana* occur due to *vikashiguna* of visha, by the property of *vya-vayiguna* it is absorbed and circulated all over the body, due to *aashuguna* it spreads in the body very fast. Due to *vaisadhyaguna* it will not stick anywhere, due to *laghuguna* it is unstable and difficult to hold by treatment and it is not digested, it is difficult to eliminate and as such troubles for long⁴⁶. So, based on the dosha predominant the *visha* has to be treated. *Darvikaravisha* is *vata* predominant, so *vata* alleviating medication is preferred first. Veganusara treatment is to be adopted to prevent the poison from reaching the *sapthamadhatu*. The poison first vitiates *rakthadhatu* then reaches the *hrudaya*. So protection of *hrudaya* is also significant. Many medicines have been proved to have anti venom effect. These drugs

can be given with various mode of administration like *Anjana* (collyrium), *Nasya* (Nasal drop), *Kakapada* (scalp incision), etc.

CONCLUSION

Cobra is responsible for large number of snake bite causalities reaching 65% of envenomation in the country. Most common symptom in cobra bite are pain and numbness of an ascending nature. The spread of venom is very fast in cobra bite and if a lethal quantity of venom (12g) is injected the patient may die within 30-40 minute. Anti -snake venom being the only therapeutic option available, but having many drawbacks, herbal plants provide a solid platform for the natural treatment of cobra bite that is explained in our classical text books. Studies show that many of the herbal drugs having anti- venom activity also. The formulation explained in our classics for *darvikaravisha* can be given in the form of *lepa, pana, anjana, nasya*, etc based on the severity.

REFERENCES:

1. VV. Pillay, Text book of forensic medicine and toxicology, 15th edition, paras medical publisher, Hyderabad, Newdelhi, 2010, P501
2. Pvsharma, Susrutasamhitha with English translation of text and dalhana's commentary along with critical notes, vol 3, kalpastana and utharastana, chaukhambhavisvabharathi oriental publishers P39
3. Pvsharma, Susrutasamhitha with English translation of text and dalhana's commentary along with critical notes, vol 3, kalpastana and utharastana, chaukhambhavisvabharathi oriental publishers P 41
4. KR. Srikantha Murthy, Ashtangahrdaya-menglish translation, nidanachikitsakalpastana, vol 2, Chaukambha publishers academy, P341
5. VV Pillay, Modern Medical Toxicology, 4th edition, Jaypee Brother Medical publishers LTD NewDelhi, 2002, P138
6. Gautham Biswas, Review of forensic medicine and toxicology, 3rd edition, the health science publisher, 2015, P528
7. www.wikipedia.com, date 22/3/2017
8. Pvsharma, Susrutasamhitha with English translation of text and dalhana's commentary along with critical notes, vol 3, kalpastana and utharastana, chaukhambhavisvabharathi oriental publishers ,P 39
9. VV Pillay, Modern Medical Toxicology, 4th edition, Jaypee Brother Medical publishers LTD NewDelhi, 2002, P 140
10. KR. Srikantha Murthy, Ashtangahrdaya-menglish translation, nidanachikitsakalpastana, vol 2, Chaukambha publishers academy, P342
11. www.wikipedia.com, date: 23/3/2017
12. www.wikipedia.com, date: 23/3/2017
13. VV Pillay, Modern Medical Toxicology, 4th edition, Jaypee Brother Medical publishers LTD NewDelhi, 2002, P140
14. KR. Srikantha Murthy, Ashtangahrdaya-menglish translation, nidanachikitsakalpastana, vol 2, Chaukambha publishers academy, P341
15. 11. http://www.umich.edu/~elements/5e/web_mod/cobra/venom2.htm, date: 24/3.2017
16. 12. <http://www.chm.bris.ac.uk/webprojects/2003/stoneley/types.htm> date: 24/3.2017,
17. KR. Srikantha Murthy, Ashtangahrdaya-menglish translation, nidanachikitsakalpastana, vol 2, Chaukambha publishers academy, P329
18. Shweta nidagundi, Chaithra .H, Ayurvedic management of venomous bite, IAMJ, 2016

19. Shweta nidagundi, Chaithra .H, Ayurvedic management of venomous bite, IAMJ, 2016
20. Shweta nidagundi, Chaithra .H, Ayurvedic management of venomous bite, IAMJ, 2016
21. http://www.emedicinehealth.com/snakebite/page2_em.htm date: 24/7/2017
22. Pvsharma,Susrutasamhitha with English translation of text and dalhana's commentary along with critical notes, vol 3, kalpastana and utharastana, chaukhambhavisvabharathi oriental publishers ,P 41
23. KR. Srikantha Murthy, Ashtangahridaya-menglish translation, nidanachikitsakalpastana, vol 2, Chaukambha publishers academy, P346
24. Shweta nidagundi, Chaithra .H, Ayurvedic management of venomous bite, IAMJ, 2016
25. KR. Srikantha Murthy, Ashtangahridaya-menglish translation, nidanachikitsakalpastana, vol 2, Chaukambha publishers academy, P352
26. RK.Sharma, Bhagawan dash, charakasamhitha text with English translation and critical exposition based on chakrapanidattas Ayurveda dipika, chikitsastana, Vol 4,chowkambha publication P 372
27. Anonymus, Department of Agadatantra, Vaidhyaratnam PS varier Ayurveda college, Kottakkal, Vishavaidhya Jyotsnika, An English translation, P38
28. Anonymus, Department of Agadatantra, Vaidhyaratnam PS varier Ayurveda college, Kottakkal Vishavaidhya Jyotsnika, An English translation, P39
29. Anonymus, Department of Agadatantra, Vaidhyaratnam PS varier Ayurveda college, Kottakkal Vishavaidhya Jyotsnika, An English translation, P40
30. Cherukulappurath Krishnan Namboodiri, Vishavaidhyasarasamuchaya, ullannormana trust publication P53
31. Cherukulappurath Krishnan Namboodiri, Vishavaidhyasarasamuchaya, ullannormana trust publication P54
32. Cherukulappurath Krishnan Namboodiri, Vishavaidhyasarasamuchaya, ullannormana trust publication P54
33. Cherukulappurath Krishnan Namboodiri, Vishavaidhyasarasamuchaya, ullannormana trust publication P55
34. Cherukulappurath Krishnan Namboodiri, Vishavaidhyasarasamuchaya, ullannormana trust publication P55
35. Kochunnithampuran, Prayogasamuchaya, Vishavaidhyam, P 41
36. VM Kuttikrishna Menon, kriyakaumadhi, Malayalam treatise on ayurvedictoxicology,P 80
37. VM Kuttikrishna Menon, kriyakaumadhi, Malayalam treatise on ayurvedictoxicology, P 81
38. VM Kuttikrishna Menon, kriyakaumadhi, Malayalam treatise on ayurvedictoxicology, P84
39. VM Kuttikrishna Menon, kriyakaumadhi, Malayalam treatise on ayurvedictoxicology, P 85
40. VM Kuttikrishna Menon, kriyakaumadhi, Malayalam treatise on ayurvedictoxicology, P 86
41. VM Kuttikrishna Menon, kriyakaumadhi, Malayalam treatise on ayurvedictoxicology, P 86
42. VM Kuttikrishna Menon, kriyakaumadhi, Malayalam treatise on ayurvedictoxicology, P 87
43. VM Kuttikrishna Menon, kriyakaumadhi, Malayalam treatise on ayurvedictoxicology, P 94

44. KR. Srikantha Murthy, Ashtangahrdaya-menglish translation, nidanachikitsakalpastana, vol 2, Chaukambha publishers academy, P335
 45. Shweta nidagundi, Chaithra .H, Ayurvedic management of venomous bite, IAMJ, 2016
 46. Pvsharma,Susrutasamhitha with English translation of text and dalhana's commentary along with critical notes, vol 3, kalpastana and utharastana, chaukhambhavisvabharathi oriental publishers ,P14
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