



## Review on traditional diagnosis and management of snakebite in Ayurveda

Manuprasad K S<sup>1</sup>, Sachin Mangattu<sup>1</sup>, Amritha S Sarma<sup>2</sup>

<sup>1</sup>Department of Agada Tantra and Vyavahara Ayurveda, Parul Institute of Ayurveda and Research, Vadodara-391760, Gujarat, India

<sup>2</sup>Department of Samhita and Siddhanta, Parul Institute of Ayurveda Vadodara-391760, Gujarat, India

### Article History:

Received on: 11 Oct 2020  
Revised on: 08 Nov 2020  
Accepted on: 11 Nov 2020

### Keywords:

Snakebite,  
Vishachikitsa,  
Darveekara sarpa,  
Visha Vaidya,  
Toxicology

### ABSTRACT



Toxicology started right from the prehistoric era when man lived in caves of forests. Reptiles originated nearly 240 million years ago, but man was born only nearly about 4 million years back. A man had to survive; he had to fight against many odds. Snake venom is one of these odds, and treatment of poisonous would have started with the first affliction by poison on man. It is believed that in India, about 2 million people are bitten by snakes annually of which 15,000 to 30,000 cases prove fatal. The problem became more after urbanization and deforestation. In the early decades of the 19<sup>th</sup> century, it has been recorded by the scholars that the mortality rate in snakebite victims was higher chiefly in rural India by the unavailability of emergency medicines and poor transportation facilities. Still, recently this has been changed significantly by providing ASV (anti snake venom) as a primary treatment through hospitals of tertiary levels. Traditional poisoning healing system was also parallel to this in rural areas of south India, especially in the state of Kerala, belief in the Traditional poisoning healing system were the main motives for it. Here an attempt has been made to explore the Traditional *Visha chikitsa Sampradaya* of Kerala, which is quite different from classical *Granthas* of *Ayurveda* (textbook) such as *Bruhatrayees* along with mainly used formulations in *Visha chikitsa*.

### \*Corresponding Author

Name: Manuprasad K S  
Phone: 7204276809  
Email: [drmanuprasadkalady@gmail.com](mailto:drmanuprasadkalady@gmail.com)

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11i4.3923>

Production and Hosted by

IJRPS | [www.ijrps.com](http://www.ijrps.com)

© 2020 | All rights reserved.

based upon the observation of living beings and their actual responses and reactions to their environment. The use of poison has been recorded in ancient *Ayurvedic* classic since long ago, and preparation made out of those poisonous drugs has shown miraculous effects in various diseases. *Agadatantra* is the branch that invariably demands practical training more than any other branches of *Ayurveda* that it has to deal with fatal cases and emergency management. *Agada yogas* (antitoxic formulations) are those formulations which counteract the prejudicial actions of *Visha* over the human body.

### INTRODUCTION

*Ayurveda*, one of the ancient sciences of life, is practiced for attaining complete health. It is not merely a kind of antiquated medicine. It is a science-

The traditional medical system of India or *Ayurveda* has eight clinical branches (*ashtanga*). Therapeutics of poisonings (*vishachikitsa*) or toxicology (*Agadatantra*) is one of the eight clinical branches. This branch has been developed mostly

in Kerala by native practitioners of poison-healing (*Viṣhavaidyas*) to meet the needs of patients of poisoning by venomous animals and plants. In other words, the native practitioners of poison-healing in Kerala have evolved this particular branch with their original knowledge and skills in the framework of *Ayurveda*. The practitioners of this branch have dealt with almost all kinds of common poisonings. The native practitioners in Kerala have put their expert knowledge down in writings mainly in the Malayalam language. There seems to have been some schools of a traditional poison-healing system in Kerala, and these schools have trained many practitioners who came from different social origins.

The traditional method of treatment for poisonings in Kerala is classified broadly into two categories, namely, *Viṣhavaidya* and *Viṣavidya*. The former *Viṣavaidya* is medical practice using only medicinal plants and mineral drugs following the theory of *Ayurveda*. The latter, *Viṣavidya*, includes chanting of mantras and ritual practices in the process of treatment for poisonings and is mainly based on the *tantric* concept. There was likely no apparent distinction between *Viṣhavaidya* (medical treatment for poisoning) and *Viṣavidya* (medical treatment associated with *mantra* for poisoning) in olden days. But gradually the distinction seems to have become more prominent. The seven literary works in Sanskrit or *Prakrit* language have traditionally been regarded as the authorized texts of the traditional poison-healing system. These seven works are commonly referred to as *Ashtangahrudayam*, *Vishanarayaneeyam*, *Uddisam*, *Utpala*, *Haramekhala*, *Kaalavanchanam* and *Lakshanamrutham*. Most of the books are in manuscript form and scripted in *manipravala*/ Malayalam language, which made it easy to understand the concept of *Vishachikitsa* to scholars around the globe. Presently some of the books like *Vishvaidyajyotsnika*, *Prayogasamuchayam* and *Kriyakoumudi* are available in translated versions.

## MATERIALS AND METHODS

Review of *Sarpavishachikitsa* (management of snakebite) from *Vishavaidyajyotsnika*, *Kriyakoumudi* and *Prayogasamuchayam*, was described in this article to enlighten the importance of traditional *Visha chikitsasampradaya* (poison treatment techniques) to the well-wishers and Ayurvedic scholars.

### **Ayurvedic diagnosing of Sarpavisha (Snakebite)**

Snake venoms are predominantly a mixture of proteins, some of which are enzymes and polypeptides. The more important enzymes in snake venom

are proteinases, transaminase, L-aminoacid oxidase, cholinesterase, phospholipase A, B, C, D (Pillay, 2016) etc. and those venoms generally Neurotoxic, hemotoxic, and myotoxic. The *ayurvedic* approach towards the assessment of *Visha* is based on the *doshic* predominance of the body. *Visha* is considered as *agantuja*, and this will vitiate the *Raktadhatu* primarily, then *Tridosha's* and *Ojas* which resides in the *Hrudaya* (Vagbhata, 2010a). Venomous bites can be distinguished by observing the bite marks. Usually, one or two fang marks with little bleeding, numbness, oedema, rise in temperature, slight itching, heaviness etc. are seen. The space between the fang marks gives an approximate idea on the size of the head of the snake.

If the site of the bite is seen with several teeth marks with blood and above said symptoms are absent in a patient, then it is believed to be *Nirvisha* (Vagbhata, 2010b) (non-poisonous). A venomous bite from snakes causes the following symptoms generally such as pain which is ascending in nature, itching, oedema at the site of the bite, oozing of blood, burning sensation which is ascending in nature, sudden development of massive oedema (especially in Russell's viper bite), pricking pain at the site of the bite, gastric disturbances like ache, nausea, salivation, vomiting, etc. (krait bite), numbness (cobra bite). In cobra bite, the bitten part will be turned into blackish or bluish, associated with pricking pain and this manifestation is merely by the vitiation of *Vata-dosha* in the body (Sushruta, 2014).

Viper venom (*Mandalivisha*) is *pitta pradhana* in nature, which vitiates *Raktadhatu* and produces symptoms like a burning sensation, oozing blood, highly edematous, rise in temperature, and yellowish discoloration of skin etc (Vagbhata, 2010c). Krait venom (*Rajilavisha*) attributes with *Kapha*, and the symptoms will be paleness at the bite site, cold in touch, numbness, difficulty in respiration (Vagbhata, 2010d), etc. *Sarpavisha* (Snake venom) spreads very fast owing to its qualities which are intrinsic and thus diagnosis must be very accurate to ensure the least chances of bad prognosis. When *Visha* enters the body, it moves from one *dhatu* to another within a short period, which is termed as *Visha vega* (Vagbhata, 2010e). In each *Visha vega's* shows certain *lakshanas* based on *dosha*, which is vitiated by *Visha*. So physician can identify by looking into those *lakshana's* and administer anti poisonous drugs from time to time. Some of the eminent toxicologists of Kerala are widely using *Vishahari leha* (Ancheril et al., 1999a) as one of the diagnosing tools to detect the type of snake which has bitten the victim.

## Management of cobra bite

In cobra bite, by looking into signs and symptoms, a physician has to administer the following medicines.

- *Mahakalyanakagritam* (a medicated Ghee) mixed with an unequal quantity of honey and one *Vilwadi gutika* is given as primary treatment.
- *Arkapatrasweda* (sudation with Calotropis leaves): 5 to 10 leaves of *Arka* (*Calotropis gigantea*) are taken and made into a bundle, these bundles of leaves are cut into two sections and the part where the latex oozing is dipped into ghee which is previously added with rock salt and melted in a hot pan. After the physician tests, the temperature of the bundle, *Swedana* (sudation) has to be performed at the periphery of the bite mark towards the centre. This procedure will help reduce the pain at the bite site as well as to minimise the development of oedema.
- *Shigrupunarnavadilepa* (External application of herbal paste): *Shopha* (oedema) is treated by application of *Shigrupunarnavadilepa* mixed in rice washed water.
- The bite is smeared with a paste of *Arkapatra* (Calotropis leaves), *Eswarimoola* (*Aristolochia indica*) and *Hingu* (*Ferula foetida*) reduces the poisonous effect in the body.
- *Seka* (pouring of medicated liquid): Root of *Karaskara* (*Strychnos nuxvomica*), barks of *Vata* (*Ficus bengalensis*), *ashwatha* (*Ficus religiosa*), *Udumbara* (*ficus recemosa*), *Plaksha* (*Ficus microcarpa*) is used as *Parisheka* (pouring of liquid) at the bite site.
- *Virechana* (Purgation): If constipation is present, then purgation is induced with *Trivrut* (*Operculina turpethum*)leha or *Mishrakasneha* depending upon the condition of the patient.
- *Nasya* (Nasal drops): Paralysis of neck muscles, diplopia, slurring of speech is treated with nasal drops consisting of juice *Bringaraja* (*Eclipta alba*) mixed with finely powdered *Vilwadi gutikas*. This medication relieves nasal discharge and subsequent pulmonary oedema. Juice of *dronapushpi* and *Tulasi* (*Osimum sanctum*) added with a fine powder of *Maricha* (*Piper nigrum*), and *Saindhava* (Rock salt) also recommended in this condition.
- *Jeevarakshagutika*: *Jeevarakshagutika* is mixed with cow's milk is given for drinking. If the

patient vomits, immediately a second dose is given, and if vomiting persists, the third dose is given. If the third dose is also vomited then, the case of poisoning is difficult to manage.

- *Anjana*: Diplopia is treated with the application of *Anjana* (collyrium) prepared from powdered *Vilwadi gutikas*.
- *Mritasnajeevanigutika*: When the symptoms of cobra bite appear very fast, three tablets of *Mritasanjeevani* is mixed with 100 ml of tender coconut water and 10 ml should be given every 30 minutes.
- *Oothuchikitsa*: Three persons are made to chew dry ginger, root of *Dushsparsa* (*Tragia involucrate*), black pepper and *Eswaramooli* (*Aristolochia indica*), and physician should instruct them to blow air from their mouth to the ears and vertex of the patient 150 times. This relives heaviness of head, somnolence and diplopia. There is usually a marked improvement in the verbal and physical responses, drowsiness and drooping of the eyes ([Ancheril et al., 1999b](#)).

## Management of viper snake bite

- A decoction of *Patoldi Gana* 75 ml with one *Vilwadi gutika* is given as primary medication.
- A warmed mixture of clarified butter and rock salt is applied locally to reduce the burning sensation. Juice of *malatee* (*Jasminum grandiflorum*) mixed with honey is given to stop hemoptysis. Juice of neem leaves (*Azadirachta indica*) with honey is beneficial in case of hematemesi. When hematuria is seen, a physician has to give *Tarunabhaskaragutika* (powdered) mixed with tender coconut water in divided doses for every 30 minutes depending upon the severity of symptoms.
- *Tindrinee* (*Tamarindus indicus*), *Punarnava* (*Boerhaavia diffusa*), *Uttamaaranee* (*Pergularia daemia*), *Guduchi* (*Tinospora cordifolia*), *bringaraja* (*Eclipta alba*), *Arka* (*Calotropis gigantea*), *Nimba* (*Azadirachta indica*), *Shigru* (*Moringa olieifera*), following leaves are tied into a bundle and cooked in rice washed water when slightly warm shall be pressed on the edematous region.
- The fruit of *Dathoora* (*Datura metal*) should be punctured, and seeds are removed from it. This gap is filled with rock salt, and the fruit is to be cooked with rice washed water. Later the fruit is ground into a paste with some rice washed water and applied on oedema.

- *Dhanyaka (Corriandum sativum)*, *Vilwamoola (Aegle marmelos)*, *Jeeraka (Cuminum syminum)* are taken in equal quantity, fried in a pan until it turns into brownish red color and added with coconut water. This mixture is given to the patient to prevent vomiting. *Vilwadimodaka* is also beneficial in case of vomiting due to viper bite.
- *Paranthyaditailam* is one of the best medicine used in conditions of *Mandalisarpajanyavrana* (Non-healing ulcer due to viper bite) (Ancheril et al., 1999c).

### Management of Krait bite

- A decoction of *Patoladi gana* mixed with *Vilwadi gutika* is given primarily.
- *Shunti (Zingiber officinale)*, *Maricha (Piper nigrum)* and *Pippali (Piper longum)* are boiled in water and given to the patient for drinking.
- Internal administration following drugs like *Vatsanabha (Aconitum Ferox)*, *Kushta (Sausurea lappa)* *Grihadooma*, *Katuaka (Picrorhiza kurrora)*, *Harenuka (Piper cubeba)*, *Chakramarda (Cassia tora)* *Gorochana*, as decoction will reduce the symptoms of Krait bite.
- *Nasya* (Nasal drops) is administered with drugs such as *Gorochana* and *Sanidhava lavana and Daaruharidra (Berberis aristata)* (Ancheril et al., 1999d).

### RESULTS AND DISCUSSION

In *Darveekara* (cobra) *Visha*, *Vatadosha* is vitiated and leads to the manifestation of symptoms like *Thoda* pricking pain or *Shoola* (localized pain), paralysis of muscle in the neck, shoulder, jaw, eyelids etc. usually respiratory failure followed by coma leads to death. Unlike other snake bites, cobra venom shows the fast manifestation of symptoms, so the physician has to use very potent remedies to save a life. *Vatahara* and *Vishaharadravyas* are mainly used to subside the *Vatadosha* and *Visha* simultaneously. *Oothuchikitsa* is implemented here to retrieve the verbal and physical responses of the patient. Usually within 100 – 150 blows of air to both nostrils and vertex helps to get a significant result. *Mandalivisha* (viper venom) vitiates *Pithadosha*, thus demonstrates the various respective lakshanas in the body. Use of *Shigrupunaranavadilepa*, *Daturakalka* like *yogas's* will be more beneficial in case of *Mandalidamsajanya shpaha* (viper bite caused oedema). Most of the cases of Viperine

bite, complications like non-healing ulcers will be existing for much more extended period due to *Pithadosha* in it, *Paranthyaditaila* yoga can be tried on these conditions for *Shodhana* (purification of the wound) of *Vrana* as well as *Ropana* (healing). In *Rajila* (krait) *Visha*, even though symptoms develop very slowly, delayed response to the medications results in difficult management in severe envenomated cases. Respiratory difficulty, induction of sleep, intoxication, delayed verbal response, oedema, and paleness of the body may be seen as significant *lakshnas* in *Rajilavisha* (Krait bite). Here *Kaphadosha* is vitiated by *Visha* and manifestations are produced accordingly, *Vaidya* has to administer more *Kapahahara* and *Vishaharadravyas* to the patient from time to time. *Trikatu* (the combination of *Piper nigrum*, *Pipiper longum*, *Zingiber officinale*), *Nasya* (nasal drops) with *Teekshanadravyas*, *Teekshanaanjana* (collyrium) has to be given to bring back the consciousness of the patient.

### CONCLUSION

Ayurvedic diagnosis of snakebite is different from the other systems of medicine, and it is mainly focused on the state of *dosha* which is vitiated by the *Visha*, so it's a difficult task for a *Vishavaidya* to fix the amount of envenomation that has taken place in the patient's body. As per traditional *Visha chikitsa sampradaya*, the biological classification of *Sarpa* (Snakes) is of secondary importance for the practitioners. They diagnose the *Sarpa visha* mostly through the perception of the vitiation of *tridoṣas* in the patient's body, and practitioners can recognize easily the nature of poison which is disturbing the *Prakriti* of each patient. A better understanding of anti-poisonous formulations from an eminent *vishavaidya* will contribute a new dimension for further research in the field of traditional Ayurvedic snakebite management.

### Funding Support

The authors declare that they have no funding support for this study.

### Conflict of Interest

The authors declare that they have no conflict of interest for this study.

### REFERENCES

- Ancheril, I. J., Sharanesh, T., Naveen, K., Deepthi, V. 1999a. Snake bite treatment in Prayoga samucayam. pages 133–340. Sri Kocchunni thampuran: Prayoga samucchayam: Panchama parichedam-sarpasamanyachikitsa. Sulabha publishers.



- Ancheril, I. J., Sharanesh, T., Naveen, K., Deepthi, V. 1999b. Snake bite treatment in Prayoga samucchayam. pages 38–52. Sri Kocchunni thampuran: Prayoga samucchayam: dwitiyaparichedam First edition, sulabha publishers.
- Ancheril, I. J., Sharanesh, T., Naveen, K., Deepthi, V. 1999c. Snake bite treatment in Prayoga samucchayam. pages 53–94. Sri Kocchunni thampuran: Prayoga samucchayam: Trutiyaparichedam First edition, sulabha publishers. .
- Ancheril, I. J., Sharanesh, T., Naveen, K., Deepthi, V. 1999d. Snake bite treatment in Prayoga samucchayam. pages 94–99. Sri Kocchunni thampuran: Prayoga samucchayam: dwitiyaparichedam First edition, sulabha publishers.
- Pillay, V. V. 2016. *Textbook of Forensic Medicine and Toxicology, 17th edition*. ISBN: 9788181914408. pages:553-726.
- Sushruta 2014. Sushruta Samhita. Kalpasthana 4/29 with Nibandha Samgraha Commentary of Dalhana and Nyayachandrika of Gayadasa on Nidanasthana, Edited by Acharya Yadhavji Trikamaji, Varanasi: Chaukhambha Krishnadas Academy, Ed. 2014, p no - 502- 824.
- Vagbhata 2010a. Ashtanga Hridaya. Utharasthana 35/9-10 with commentaries of Arunadutta and Hemadri, edited by Pt. Hari Sadasiva Sastri Paradakara. Varanasi: Chaukhambha Surbharati Prakashan, Ed. P no: 903 - 956.
- Vagbhata 2010b. Ashtanga Hridaya. Utharasthana 35/21-23 with commentaries of Arunadutta and Hemadri, edited by Pt. Hari Sadasiva Sastri Paradakara. Varanasi: Chaukhambha Surbharati Prakashan, Ed. P no: 908 - 956.
- Vagbhata 2010c. Ashtanga Hridaya. Utharasthana 36/19-22 with commentaries of Arunadutta and Hemadri, edited by Pt. Hari Sadasiva Sastri Paradakara. Varanasi: Chaukhambha Surbharati Prakashan, Ed. 2010, p no: 908- 956.
- Vagbhata 2010d. Ashtanga Hridaya. Utharasthana 36/23-24 with commentaries of Arunadutta and Hemadri, edited by Pt. Hari Sadasiva Sastri Paradakara. Varanasi: Chaukhambha Surbharati Prakashan, Ed. P no: 908-956.
- Vagbhata 2010e. Ashtanga Hridaya. Utharasthana 36/25-26 with commentaries of Arunadutta and Hemadri, edited by Pt. Hari Sadasiva Sastri Paradakara. Varanasi: Chaukhambha Surbharati Prakashan, Ed., p no: 908 - 956.