



## Snake bite and its Ayurvedic Perspective - A Review Article

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### Abstract

Snakebites are a serious problem worldwide and a common medical emergency. In India, they are often an overlooked cause of accidental deaths, especially in rural areas of tropical and subtropical regions. Ayurveda has its own traditional methods for treating poisoning (visha), which can be understood alongside modern science. India reports the highest number of snakebites (about 81,000) and deaths (about 11,000) each year. Because of this, the World Health Organization has added snakebite to its list of neglected tropical diseases and created a special treatment protocol. The high death rate is mainly due to poor healthcare in rural areas and delays in reaching hospitals that can provide anti-snake venom. Ayurveda describes many treatments for venomous bites, including the “Chaturvimsati Vishachikitsopakrama” mentioned in the Charaka Samhita. Some of these treatments are also described in other classic texts like the Sushruta Samhita, Astangasamgraha, and Astangahrdaya. According to Acharya Charaka, there are 24 methods (Upakramas) to treat poisoning, which even include the use of mantras.

**Keywords:** Snake Bite, Sarpa, Visha, Venom, Ayurvedic Management

### Introduction

Ayurveda is divided into eight main branches, and one of them is Agad Tantra, which focuses on the study of poisons. This branch covers the signs and symptoms caused by bites or stings from snakes, insects, scorpions, rats, and more. It also deals with identifying and managing natural, artificial, and mixed poisons.

Snakebite is a common occupational hazard for farmers, plantation workers, and others who work outdoors, leading to high illness and death rates worldwide. India is one of the countries where snakebite is a frequent medical emergency. There are about 3,150 snake species in the world, of which around 600 are venomous. In India, out of 216 species, 60 are poisonous. Globally, snakebites cause around 5.4 million cases each

year, with 2.5 million cases of venom poisoning and about 125,000 deaths. India records the highest number—about 81,000 bites and 11,000 deaths annually. Snake venom can be mainly of three types: haemotoxic, cytotoxic, or neurotoxic. Modern treatment involves anti-snake venom (ASV). Ayurveda, however, has described the Chaturvimshati Vishachikitsopakrama—24 methods for treating poisonous bites, including those from snakes. These techniques have been used for thousands of years and can be applied anywhere, even without advanced medical equipment, with minimal complications.

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## Methodology

### Search Strategy:

Keywords searched: snake, snakebite, Ayurvedic management.

Sources included classical Ayurvedic texts (Charaka Samhita, Sushruta Samhita, AstangaHridaya), commentaries, and multiple research databases (PubMed, Google Scholar, ResearchGate, AyushDhara).

### Types of snakes in ayurveda:

AstangaSangraha (Vagbhata): Two main groups — Divya and Bhaum. Examples of Divya snakes include Vasuki, Takshaka.

Sushruta Samhita: Further classifies Bhaum snakes into five categories:

Darvikar, Mandali, Rajiman, Nirvisha. Vaikaranja

### Types of snakebites (sushruta's classification):<sup>1</sup>

Sarpita – Deep, inflamed wound; blackish in color.

Radita – Superficial wound; red or bluish; considered less poisonous.

Nirvisha -Non-poisonous bite (dry bite); no signs of inflammation.

Sarpangabhihata -No actual bite occurs; may involve contact without envenomation.

### According to Modern Classification<sup>2,3</sup>

Snakes are broadly divided into two main groups:

(A) Venomous

(B) Non-venomous

Venomous snakes are further classified into **three main types** based on the primary action of their venom:

#### Neurotoxic –

**Action:** Affects the nervous system, leading to paralysis or respiratory failure.

**Examples:** Cobras, kraits, coral snakes.

#### Hemotoxic (Vasculotoxic) –

**Action:** Damages blood cells and blood vessels, causing internal bleeding, clotting issues, and organ damage.

**Examples:** Vipers, rattlesnakes.

#### Cytotoxic (Myotoxic) –

**Action:** Destroys local tissues and muscles, leading to swelling, necrosis, and sometimes permanent damage.

**Examples:** Some species of vipers and certain sea snakes.

### Causes of Snakebite (Ayurvedic Perspective)<sup>4</sup>

Acharyas have described eight causes for SarpaDamsha (snakebite): Bhaya (fear), Krodha

(anger), Aaharartha (search for food), Padasparsha (accidental stepping), Ativishat (excess toxicity), Vairadhya (enmity), Pāpakarma (sinful acts), and Deva-Rishi-Yamakopa (wrath of divine or celestial beings).

### Symptoms of Snakebite

Accidental contact with a snake can produce symptoms such as local inflammation (Daah). Charaka describes this condition as Shankavisha (suspicious poisoning), which may cause fever, vomiting, fainting, burning sensation, exhaustion, delusion, and diarrhea. These manifestations are often linked to fear-induced reactions.

### Management of snake bite (Ayurvedic Perspective)<sup>5,6</sup>

#### Mantra

Chakrapani regarded *Mantra* as the foremost and most effective *upakrama* for neutralizing poison without fail. Charaka stated that mantras constrict blood vessels, preventing the venom from entering systemic circulation and protecting against secondary infections. The rhythmic chanting of mantras is believed to instill confidence in the victim, reduce anxiety, and stimulate the sympathetic nervous system. This may strengthen peripheral blood vessels, ensuring proper blood flow to vital organs. Thus, *Mantra* therapy can play an important role in reassuring and stabilizing the patient.

#### Arishta-Bandhana

All necessary measures should be undertaken within *100 Matrakala*, as the venom remains localized at the bite site during this period before entering the bloodstream. Before the poison spreads, a *Venika* (rope or tourniquet-like band) should be applied just above the bite, followed by firm squeezing towards the site. *Arishta-Bandhana* is more effective when combined with chanting. However, the ligature should not be excessively tight or too loose—too much pressure may cause swelling or necrosis, while insufficient pressure will be ineffective. Sushruta advised applying the ligature approximately four inches above the bite, using plant bark or other soft materials.

In modern medicine, ligation is generally discouraged, yet some studies show that restricting lymphatic and blood flow through a tourniquet or pressure immobilization bandage can help slow venom spread.

### **Agni**

For bites on areas where *Arishta-Bandhana* cannot be applied—such as the trunk or face—Charaka recommended suction, excision, or cauterization. The wound should be cauterized using red-hot gold or iron, except in viper bites, where increased *pitta* makes burning harmful as it may worsen toxic symptoms.

### **Utkartana**

Just as cutting a tree's roots halts its growth, performing *Utkartana* (incision) at the bite site helps prevent venom spread. After incision, *Achushana* (careful suction) is advised to remove venom-laden blood. In modern medicine, incision is avoided due to diagnostic challenges and potential complications.

### **Nishpidana**

*Nishpidana* (squeezing) involves pressing around the bite site—particularly on joints or vital points—where ligation is not possible.

### **Chushana**

During *Chushana*, the mouth is protected with cloth, clay, ash, *Agad*, cow dung, or coated with oil or ghee to prevent ingestion of venom.

### **Raktamokshana**

Bloodletting is the last and most potent treatment when the poison has spread to entire body. When poison has spread, bloodletting is to be done because when toxic blood is removed the toxic manifestations fail to sustain and vanishes altogether.[7] It is contra indicated in children, old age and in pregnant women's.

### **Prashamana**

Prashamanis done in case of bleeding after bloodletting.

### **Parisheka**

When venom has entered the body, *Parisheka* (cold therapy) is recommended around the bite site using herbal extracts with cooling properties until goosebumps appear. This helps coagulate and localize venom, preventing further spread and alleviating symptoms like fainting, toxicity, and tachycardia. Sushruta recommended applying *Lepa* (herbal paste) around the wound and irrigating with water infused with sandalwood (*Chandan*) and *Khas*. Modern medicine parallels this with thorough washing or irrigation using clean water, isotonic solutions, or antiseptics to reduce infection risk.

### **Avagaha**

*Avagaha* (immersion) involves soaking the affected part in a tub containing herbal decoctions or lukewarm medicated oil with anti-venom properties. This is comparable to *Hot Water Immersion* (HWI) used in marine or freshwater envenomation to inactivate certain venom components, reduce inflammation, and improve circulation and metabolic health.

### **Pratisaranam**

Sprinkling of medicated powder. It absorbs excess moisture reduces itching, irritation, cools the skin and also dries the oozing.

### **Prativisham**

VridhaVagbhata described in A.S.U. 48 about use of Prativisha. This treatment is useful when spread of poison is uncontrolled, after 5 th phase but before 7 th phase. This is last most hopeful treatment hence should be used carefully.

### **Vamana**

Sushruta described seven stages (*Visha Vega*) of poisoning and advised induced vomiting (*Vamana Karma*) during the second stage of *RajimanVisha Vega*, followed by anti-poison remedies. It is also recommended in the fourth stage of *Darvikar*, *Mandali*, and *Rajiman* poisoning. Strong emesis is suggested when the bite is from a Kapha-dominant snake, during winter, and symptoms like salivation, fainting, and intoxication occur. Vagbhata advises Vamana when the bite is above the navel and Kapha accumulates in the heart, causing heaviness, salivation, and nausea.

### **Virechanam**

For people with a Pitta constitution bitten by a Pitta-dominant snake below the navel, where poison localizes in the large intestine (*Pakvashaya*), purgation therapy (*Virechana*) with appropriate drugs is given.

### **Upadhana**

When vitiated Kapha blocks channels and disrupts Vayu movement, leading to severe breathing difficulty and impending death, *Kaakpad* (scalp incision) is performed. Fresh meat from goat, buffalo, or hen is placed in the incision to draw poison from the blood. Sushrutadescribes this in the seventh stage of *DarvikarVisha Vega*, and Vagbhata also recommends applying fresh bloody meat or skin over the incised site.

### **Hridayavarana**

When bitten by a poisonous snake or insect, the

primary goal is to protect the heart. Honey, ghee, cow's milk, bone marrow, sugarcane juice, or goat's blood are given immediately to shield the heart. Since poison often has a sharp (*Tikshna*) quality that weakens the heart, pure ghee or ghee with honey and anti-poison drugs are given, sometimes followed by Vamana.

#### **Anjanam**

*Anjanam* (medicated collyrium) is applied when symptoms like eye swelling, drowsiness, discoloration, or blurred vision occur. In cases of *Sarpita* snake bites, it is used in the 3rd and 7th stages of poisoning.

#### **Dhumam**

*Dhumam* (medicated smoke inhalation) is used for poison affecting the upper body (*Urdhwajathru*).

#### **Leham**

When the mouth becomes dry from poisoning, a ghee- and honey-based linctus (*Leham*) is given.

#### **Aushadham**

Afterward, anti-poison medicines are administered orally, with or without mantra chanting. This also includes other internal medicines like decoctions (*Kashaya*), pills, nasal drops (*Nasya*), medicated drinks, and collyrium.

#### **Parisheka**

Parishek means washing of affected area with plain or medicated water, cold, warm, lukewarm water can be used depending upon condition of the patient. Santalum album and Vetiveriazizanonoides can be used as medicines for Parishek

#### **Avagaha**

Avagaaha is done in the presence of severe pain or pain caused by retention of urine. A metal vessel large enough to the level of neck is filled with warm water and patient is directed to sit in it in such way that is body remains immersed in water. When the water loses warmth additional warm water is supplemented after removing an equal quantity of cold.

#### **Lepa**

It is a method for treating bite wounds with medicinal paste. The practice of Sheetal lepa should be carried out if a Pitta Prakriti individual experiences thirst or unconsciousness. To assist remove any residual venom after Raktamokshana, apply Lepa to the bite site. Sigrupunarnavadilepa, which treats allergies brought on by viper bites, is a common form of lepa.

#### **Mritasanjivana**

An ancient revival method for patients showing signs of death or near-death. Charaka, in the 23rd chapter of *Chikitsasthana*, advises using *Palasha* seed powder mixed with peacock bile in advanced stages of poisoning. Classical texts describe several such resuscitation methods. In modern medicine, this parallels life-saving measures like anti-snake venom and CPR.

#### **Discussion<sup>7</sup>**

In Ayurveda, snakes are classified into venomous and non-venomous categories. Venomous species such as *Darvikar*, *Mandali*, and *Rajimaan* possess poisonous effects similar to neurotoxic, vasculotoxic, and myotoxic venoms, respectively. Since many snakes are non-venomous, their management is generally not discussed in detail. The *ChaturvimshatiVishochikitsaUpakrama*, as described in classical Ayurvedic texts, outlines treatments for venomous snake envenomation. It have all the measures needed in the management of poisons.

ChaturvimshatiUpkramas is common for all types of Visha i.e., Sthaavara, Jangama, Gara, DooshiVisha etc. In most of the cases Upkramas should be selected by the physician on the basis of the type of Visha, Prakruti, Saatmya, Rtu, Sthaana, Vega and Balaabala. In ChaturvimshatiUpkramas, the pacifying measures are Anjana, Lepa, Dhupana, Leha, Upadhana, Prashamana, Prathisarana. The counteracting medications are Mantra, Aushadhe, Prativisha. The elimination therapy are Raktamokshana, Vamana, Virechana, Nasya. Supportive symptomatic treatment are Hrdhayavarana, Sanjasthapana, Mrthasanjivani. The measure that restrict entry of poison into systemic circulation are Arishta, Uthkarthana, Nishpidana, Chushana, Agni, Parisheka, Avagaha.

#### **Conclusion**

Each *Upakrama* has its own unique role in neutralizing venom. While certain approaches differ from modern medical practices, Ayurvedic treatment methods hold great significance—particularly in remote areas where access to medical facilities is limited.

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