

ANTIDOTES FOR SNAKE BITE ACCORDING TO THE SIDDHA SYSTEM OF MEDICINE – A REVIEW

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Abstract

The Siddha system of medicine is being time tested and still caters to the health needs of the society. Today the poisons Snake bites are the life threatening problems in the society. The aim of siddha medicine is to make the body perfect imperishable and to promote longevity. More than 80% of siddha medicines are formulated by herbal, mineral and metal products. A snake bite is an injury caused by the bite of a snake especially a venomous snake. The WHO (World Health Organisation) says snakebites are a neglected public health issue in many tropical and subtropical countries. For this Siddha system has the unique remedy for emergency needs of Snake bite.

Key Words: Siddha medicine, Antidotes for Snake bites, Review of literature.

Aim and Objective

The aim and objective of this review paper is to disclose the effectiveness of Siddha medicines in the treatment of Snake bite cases to health management and also to conduct the research work about the medicine for its standardisation.

Introduction

The siddha system of medicine provides the health care through prophylaxis treatment and rejuvenation. The number of venomous snakebites that occur each year may be as high as five million. They result in about 2.5million poisonings and 20,000 to 1,25,000 deaths. In India only five of them are dangerously poisonous to man; i.e King Cobra, Common Cobra, Common Krait, Russell's viper and Saw-Scaled viper. Antivenom is effective at preventing death from bites, however antivenomous frequently have side effects. For a physician, it nourishes knowledge about the art of diagnosis, pharmacology, and toxicology. The frequency and severity of bites vary greatly among different parts of the world. The siddha system of medicine comprising with it all sciences. In certain life threatening condition like snake bite poisons siddhars enumerated some herbals, herbometal and herbomineral formulation.

Materials and Methods:

Snakes:

The poisonous snakes may be divided into five families:

- 1.Viperidae
- 2.Elapidae
- 3.Hydrophidae or sea snakes
- 4.Colubridae
- 5.Atractaspidiae.

Common poisonous snakes in India:

1. The cobra
2. The King cobra
3. The common Krait
4. The banded Krait
5. Russell's viper or Daboia
6. Sea snakes.

Poison gland:

They are the modified parotid salivary glands in the snake. They are situated behind the eyes, One on each side of the head above the upper jaw.

Fangs:

Fangs are sharp, long, hollow or grooved teeth that are connected to a small sac in the snake's head behind its eyes. These sacs produce a poisonous liquid called venom. All the poisonous snakes have two fangs. They are bigger than the other teeth and are grooved or canalised in poisonous snakes. Non – poisonous snake bites leave a number of small impressions in a row. When a snake bites, venom is released and starts to work immediately to kill or paralyze the prey.

Snake venom:

It is produced in modified parotid glands, normally responsible for secreting saliva. It is stored in structures called alveoli behind the animal eyes, and ejected voluntarily through its hollow tubular fangs. Venom is composed of hundreds to thousands of different proteins and enzymes. Venom in many snakes, affects virtually every organ system in the human body and can be a combination of many toxins, including **cytotoxins, hemotoxins, neurotoxins, and myotoxins**. The colubrine and elapidae venom is mainly neurotoxic, and has a primary toxicity for the respiratory and cardiac centres. The viperine venom is mainly haemolytic and

causes intravascular haemolysis and depression of the coagulation mechanism. The sea snake venom is myotoxic.

Signs and symptoms:

I. Local Symptoms

II. Systemic Symptoms.

Local Symptoms

- Fang marks
- Bleeding
- Discoloration
- Burning sensation
- Swelling.

Systemic Symptoms:

Central:

- Dizziness
- Fainting
- Increased thirst
- Head ache

Vision:

- Bluriness
- Drooping eyelids

Heart & Vessels:

- Rapid pulse
- Low blood pressure
- Severe shock

Muscular:

- Convulsions
- Loss of coordination
- Paralysis

Respiratory:

- Breathing difficulty

Review of Literature in the Treatment for Snake bite:

SI. NO	INGREDIANTS	BOTANICAL NAME/ CHEMICAL NAME	FORMULATI ON	DOSAGE/ METHOD OF APPLICATION/ ADJUVANT	INDICATIO N
1.	Vembu leaf	<i>Azadirachta indica.A.Juss.</i>	Oil	100-200ml/ Internal	Snake bite ^[4]
2.	Vazhai bark	<i>Musa paradisiacal. Linn.</i>	Juice	1 drinking glass/ Internal	Snake bite ^[4]

3.	<i>Thumpai</i> leaf <i>Milagu</i>	<i>Leucas aspera</i> , <i>Spreng.</i> <i>Piper nigrum.</i> <i>Linn.</i>	Karkam (Medicinal paste)	Internal	Snake bite ^[4]
4.	<i>Pei churai</i> root	<i>Lagenaria siceraria</i> (Mol) <i>Standley.</i>	Karkam (Medicinal paste)	Kottaipakkalavu (10-12gms)/ Internal	Snake bite ^[4]
5.	<i>Vel Vel</i> bark Butter milk	<i>Acacia leucophloea.</i> <i>Roxb. Willd.</i>	Karkam (Medicinal paste)	Internal	Red Viper bite ^[5]
6.	<i>Thumpai</i> leaf Gingili oil	<i>Leucas aspera</i> , <i>Spreng.</i>	Liquid	200ml/ Internal	Snake bite ^[6]
7.	<i>Konchi</i> leaf	<i>Glycosmis arborea</i> (Roxb.) <i>DC.</i>	Karkam (Medicinal paste)	<i>Elumichai alavu</i> (38.4556gm)/ Internal	Snake bite ^[6]
8.	<i>Peria nankai</i> leaf	<i>Polygala elongate</i> , Klein	Karkam (Medicinal paste)	Internal	Snake bite ^[6]
9.	<i>Arugambul</i>	<i>Cynodon dactylon</i> (Linn) <i>Pers</i>	Juice	100ml/ Internal	Snake bite ^[6]
10.	<i>Thuthuvalai</i> flower	<i>Solanum tribatum.</i> Linn	Karkam (Medicinal paste)	Internal	Snake bite ^[7]
11.	<i>Nilavarai</i>	<i>Cassia senna</i> , <i>Linn.</i>	Powder	Internal/ Uthamani juice	Snake bite ^[7]
12.	<i>Nartham</i> root	<i>Citrus medica</i> L. <i>Citrus limon</i>	Karkam (Medicinal paste)	Internal	Snake bite ^[8]

	Elumichai root Uppili root Avuri root	(Linn) Burm.f. <i>Mimosa paniculata</i> <i>Indigofera tinctoria, Linn.</i>	paste)		
13.	Vagai root Vilvam Nannari	<i>Albizia lebbek</i> (linn.) Benth. <i>Aegle marmelos.</i> Linn. Corr <i>Hemidesmus indicus.</i> Linn R.Br	Karkam (Medicinal paste)	Internal	Snake bite ^[9]
14.	Manoselai Vediuppu Kuntri Avarai vithu Kadugu	<i>Arseni disulphidum bisulphuret of arsenic realger</i> <i>Potassh nitras</i> <i>Abrus precatorius, linn.</i> <i>Lablab purpureus, Linn.</i> <i>Brassica juncea,</i> Czern & Coss. <i>Nicotiana tabacum.</i> Linn	Pills	<i>Payaralavu</i> (40-45mg)/ Internal	Snake bite ^[10]

	<i>Pugaiylai</i> juice				
15.	<i>Ven kuntri</i> root Water	<i>Abrus precatorius, linn.</i>	Karkam (Medicinal paste)	Internal	Cobra bite ^[11]
16.	<i>Nirmulli</i> root Water	<i>Hygrophila auriculata</i>	Karkam (Medicinal paste)	Internal	Viper bite ^[11]
17.	<i>Kurinchan</i> root Hot water	<i>Hiptage benghalensis (Linn) Kurz.</i>	Karkam (Medicinal paste)	Internal /Bds 48days	Snake bite ^[12]
18.	<i>Arugan</i> root	<i>Cynodon dactylon (Linn) Pers</i>	Dicoction	Internal	Viper bite ^[12]
19.	<i>Amukkura</i> samoolam Hot water	<i>Withania somnifera (Linn) Dunal.</i>	Karkam (Medicinal paste)	Internal	Viper bite ^[13]
20.	<i>Uttamani</i> leaf juice <i>Kuppai meni</i> leaf juice <i>Akasha garudan</i> kizhangu	<i>Pergularia daemia (Forssk) Chiov.</i> <i>Acalypha indica.Linn</i> <i>Corallocarpus epigaeus Benth. Ex Hook.</i>	Karkam (Medicinal paste)	<i>Kottaipakkalavu</i> (10-12gms)/ Internal	Cobra bite ^[14]
21.	<i>Kuppai meni</i> root <i>Avuri</i> root	<i>Acalypha indica.Linn</i> <i>Indigofera</i>	Karkam (Medicinal paste)	<i>Paakalavu</i> (6.022gm)/ Internal	Snake bite ^[14]

	Vasambu Vengayam	<i>tinctoria, Linn.</i> <i>Acorus calamus.Linn</i> <i>Allium cepa.Linn</i>			
22.	Kazharchi root bark	<i>Caesalpinia bonduc, (Linn) Roxb.</i>	Powder	Verukadi (1250-1500mg)/ Internal/ Hot water	Snake bite ^[14]
23.	Vellarugu leaf	<i>Enicostemma axillare. (Lam) Raynal</i>	Juice	Internal	Snake bite ^[17]
24.	Kovai leaf	<i>Coccinia grandis (Linn) Voigt.</i>	Juice	External	Snake bite ^[8]
25.	Thai velai Erukku leaf Navacharam	<i>Gynandropsis gynandra (Linn.) Briquet</i> <i>Calotropis gigantean (Linn) R.Br.</i> <i>Ammoni Chloridum</i>	Nasiyam (Nasal drops)	External	Snake bite ^[14]
26.	Thumpai flower	<i>Leucas aspera, Spreng.</i>	Nasiyam (Nasal drops)	External	Snake bite ^[15]
27.	Chiruchinni leaf Erukku leaf	<i>Acalypha fruticosa, Forsk.</i> <i>Calotropis gigantean (Linn) R.Br.</i>	Paste	External	Snake bite ^[16]

28.	Thuththi leaf Omam Gingili oil	<i>Abutilon indicum</i> <i>Carum copticum</i> Benth & Hook.f.	Patru (Plaster)	External	Snake bite ^[16]
29.	Erukku leaf Pugaiyilai juice	<i>Calotropis gigantean</i> (linn) R.Br. <i>Nicotiana tabacum</i> .Linn	Nasiyam (Eye, Ear, Nose drops)	External	Snake bite ^[17]
30.	Thumpai Thulasi Milagu Vetrilai Uppu	<i>Leucas aspera</i> , Spreng. <i>Ocimum sanctum</i> .Linn <i>Piper nigrum</i> . Linn. <i>Piper betle</i> . Linn. Sodium Chloride	Patru (Plaster)	External	Snake bite ^[17]
31.	Pungu root Nerunjil Kai	<i>Pongamia pinnata</i> (Linn.) Pierre. <i>Tribulus terrestris</i> .Linn	Patru (Plaster)	External	Snake bite ^[18]
32.	Milagu	<i>Piper nigrum</i> .	Nasiyam	External	Blackcobra

	<i>Perungayam</i>	<i>Linn.</i> <i>Ferula asafetida,</i> <i>Linn.</i>	(Snuffing)		bite ^[18]
	<i>Kuntri</i>	<i>Abrus</i> <i>precatorius, linn.</i>			
	<i>Kazharkodi seed</i>	<i>Caesalpinia</i> <i>bonduc, (Linn)</i> <i>Roxb.</i>			

Other prepared medicines:

- 1) *Aanantha vairavan Kuzhigai* for internal and external^[19].
- 2) *Kowshigar kuzhambu* for internal and external^[20].
- 3) *Pirandai kattu* for external^[21].
- 4) *Neelakanda kuzhigai* for internal^[21].

Herbs used in Snake bite:

Sl.No	Local name	Botanical name	Part used
1	<i>Thumpai</i>	<i>Leucas aspera, Spreng</i>	Whole plant ^[15]
2	<i>Kollankovai</i>	<i>Corallocarpus epigaeus</i> <i>Benth. Ex Hook</i>	Root ^[15]
3	<i>Karisalai</i>	<i>Eclipta prostrate, Linn.</i>	Whole plant ^[15]
4	<i>Manjal</i>	<i>Curcuma longa. Linn</i>	Dried rhizome ^[15]
5	<i>Yetti</i>	<i>Strychnos nux-vomica,</i> <i>Linn</i>	Seed ^[15]

6	<i>Vellilothiram</i>	<i>Symplocos racemosa.Roxb.</i>	Bark ^[15]
7	<i>Thuthuvalai</i>	<i>Solanum trilobatum. Linn</i>	Fruit ^[15]
8	<i>Shivanar vembu</i>	<i>Indigofera aspalathoides, Vahl ex Dc.</i>	Whole plant ^[15]
9	<i>Naga-mali</i>	<i>Rhinacanthus nasuta (Linn) Kurz.</i>	Leaf ^[15]
10	<i>Nancharuppan</i>	<i>Tylophora indica (Burm.f) Merrill.</i>	Whole plant ^[15] .

First aid

In Snake bite, the first aid recommendations may vary, in part because different snakes have different types of venom. Some have little local effect, but have life threatening systemic effects.

The following methods are using in first aid:

- Immobilization of victim
- Antivenom administration
- Application of a tourniquet to the bitten limb is generally not recommended.
- Incision on the bitten area and suction of poison is not recommended.
- Sucking out venom, either by mouth or with a pump, does not work and may harm the affected area directly.

Discussion and Conclusion:

Snake bite is a major public health problem. Toxicology is given highest importance among the branches of medicine owing to its need for emergency management. The physician who treats a snake bite victim needs to be careful and confident. There are number of books written in Tamil Siddha books. “Sarabaentira vaiddiya muraigal (Visha roga

sigitchai)” is one such book in siddha system. There are many traditional preparations and formulations successfully treating snake bite cases upto this day. These preparations which can give confidence to young practitioners of Siddha system in handling emergencies in Snake bite cases. This review of literature will helpful to do further research work and clinical trials for Snake bites in future.

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