

# Snakes

Nepanagar

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## Snakes

The planet is home to almost 3,400 living species of these carnivorous reptiles. Snakes have established populations in fossorial, arboreal, terrestrial, and aquatic environments across all continents except Antarctica. Bestowed with exceptional biological diversity, snakes are no exception in India. 300 snake species inhabit the varying habitats across the country, of which more than 60 are venomous, 40+ mildly venomous, and about 180 non-venomous.

There are snakes in India found throughout the country but only a certain are poisonous mostly found in the deep jungles of India, and one can also see a cobra adorned around the neck of Lord Shiva. In total there are around 300 species of snakes. Out of these, only 13 are poisonous enough to kill a human. The most commonly found are – the Indian Cobra (*Naja naja*), Common Krait (*Bungarus Caeruleus*), Russell's Viper (*Dabiola Russellii*), and Saw-Scaled Viper (*Echis carinatus*). These ones pose a serious threat to their lives. But most of these venomous snakes are found in the deep jungles and are not usually seen freely roaming around the street of big metro cities or populated regions. Most travelers tend to visit rich monuments and cities, these places are so thronged with humans that one can rarely see wild animals here. Did the information scare you? Well, fear not! The majority of the snakes found in India are non-poisonous, so you can go back to being normal from the apparent paranoia. If you do happen to encounter one, it probably will be the non-poisonous one. The species fall under four families – Colubridae, Elapidae, Hydrophiidae, and Viperidae.

**Colubridae** – Evolved about 35 to 55 million years ago, this is the largest and most diverse family of snakes. Consisting of rear-fanged snakes, most of them are non-venomous in nature. The family comprises snakes such as keelbacks, rats snakes, wolf snakes, and trinket snakes. What sets them apart from other snakes is the presence of Duvernoy's glands on either side of the head behind the eyes – which are homologous to the venom gland.

**Elapidae** – Fairly newer in terms of the evolution, these snakes have the unique characteristic of possessing two upring, fixed front fangs. Generally venomous, one can easily recognise them by their threat display of spreading neck flaps. Distributed throughout India, mostly kraits and cobras fall under this family.

**Hydrophiidae** – Snakes in this family have adapted to a marine way of life and have evolved the ability to swim effectively and excrete salt. Majority of them are highly venomous with relatively short fangs. This family consists of species of coral snakes and sea snakes.

**Viperidae** – Snake species in this family possess long, hollow, retractable fangs which allow easy injection of venom in the prey. Most of them have keeled scales and slit-shaped, elliptical pupils. The family comprises vipers, which are widespread on the Indian mainland.

Based on dentition or placement of teeth in the jaw, snakes fall into four categories, namely – Aglyph, Opisthoglyph, Proteroglyph, and Solenoglyph.

**Aglyphous** snakes lack any specialised teeth and are generally non-venomous, with a few exceptions.

**Opisthoglyphous** snakes possess fangs at the rear end of maxillae and are thus known as rear-fanged. Falling under the family Colubridae, most of these snakes are venomous. Unique to elapids,

**proteroglyphous** snakes have fangs in the front, resembling hollow needles. Lastly,

**solenoglyphous** snakes possess the most advanced venom delivery mechanism, generally found amongst vipers. One can generally correlate dentition in snakes with their venom-producing nature and evolutionary lineage.

Snakes are categorized in three parts

1. Highly venomous
2. Mildly venomous
3. Non venomous

**Highly Venomous snake:** Venomous snakes kill their victims with toxic substances produced in a modified salivary gland that the animal then injects into prey using their fangs. Such venom has evolved over millions of years to cause severe reactions in the victim, from immobilization and hemorrhage to tissue death and inflammation,

1. Russell's Viper
2. Saw scaled Viper
3. Cobra
4. Common Krait

**Mildly Venomous snake:** Snakes are considered Mildly Venomous when any aspect of their bite due to modified saliva or toxin delivery system (such as fangs) which deliver toxins causes a reaction in their prey or would-be predators as long as they are not considered generally dangerous to humans .

1. Common Cat Snake

**Non Venomous Snake:** Non-venomous snakes have teeth, just like the venomous variety. So even in the case of a bite from a non-venomous snake you should still take special care and watch for infections, as with any small injury. Bites from large non-venomous snakes can also be devastating - some large python and boas are able to cause massive lacerations that require urgent medical care.

1. Python
2. Checkered Keelback
3. Common Trinket
4. Kukri Snake
5. Common Wolf Snake
6. Olive Keelback
7. Striped Keelback
8. Green Keelback
9. Brahminy Blind Snake
10. Common Sand Boa
11. Common Bronzeback Tree Snake
12. Rat Snake
13. Red Sand Boa
14. Barred Wolf Snake



Russell's viper (*Daboia russelii*) is a venomous snake in the family Viperidae native to the Indian subcontinent and one of the big four snakes in India. It was [described](#) in 1797 by [George Shaw](#) and [Frederick Polydore Nodder](#), and named after [Patrick Russell](#) who wrote about it in his 1796 work *An account of Indian serpents*, collected on the coast of Coromandel.

### Description

The Russell's viper's head is flattened, triangular, and distinct from the neck. The snout is blunt, rounded, and raised. The nostrils are large, each in the middle of a large, single [nasal scale](#). The lower edge of the nasal scale touches the [nasorostral](#) scale. The supranasal scale has a strong crescent shape and separates the nasal from the nasorostral scale anteriorly.

### Venom

A potent heterodimeric PLA2 neurotoxin (designated a Russtoxin) was found in the venoms of all Russell's vipers except *Daboia russelii*

Venom of this species is delivered by means of [solenoglyphous](#) dentition.<sup>[24]</sup> The quantity of venom produced by individual specimens of *D. russelii* is considerable. Venom yields for adult specimens have been reported as 130–250 mg, 150–250 mg, and 21–268 mg. For 13 juveniles with an average total length of 79 cm (31 in), the venom yield ranged from 8 to 79 mg (mean 45 mg).

For most humans, a lethal dose is about 40–70 mg, well within the amount that can be delivered in one bite. In general, the toxicity depends on a combination of five different venom fractions, each of which is less toxic when tested separately. Venom toxicity and bite symptoms in humans vary within different populations and over time.

### Symptoms

Envenomation symptoms begin with pain at the site of the bite, immediately followed by swelling of the affected extremity. Bleeding is a common symptom, especially from the gums and in the urine, and sputum may show signs of blood within 20 minutes after the bite. The blood pressure drops, and the heart rate falls. Blistering occurs at the site of the bite, developing along the affected limb in severe cases. Necrosis is usually superficial and limited to the muscles near the bite, but may be severe in extreme cases. Vomiting and facial swelling occur in about one-third of all cases.<sup>[4]</sup> Kidney failure ([renal failure](#)) also occurs in approximately 25–30 percent of untreated bites. Severe [disseminated intravascular coagulation](#) also can occur in severe envenomations. Early medical treatment and early access to antivenom can prevent and drastically reduce the chance of developing the severe/potentially lethal complications.

Severe pain may last for 2–4 weeks. It may persist locally, depending on the level of tissue damage. Often, local swelling peaks within 48–72 hours, involving both the affected limb and the trunk. If swelling up to the trunk occurs within 1–2 hours, envenomation is likely to have been massive. Discoloration may occur throughout the swollen area as red blood cells and plasma leak into muscle tissue.<sup>[15]</sup> Death from [septicaemia](#) or kidney, respiratory, or cardiac failure may ensue 1 to 14 days after the bite, or sometimes later.





Echis (common names: saw-scaled vipers, carpet vipers) is Middle East, India, Sri Lanka and Pakistan. They have a characteristic threat display, rubbing sections of their body together to produce a "sizzling" warning sound. The name Echis is the Latin transliteration of the Greek word for "viper". Their common name is "saw-scaled vipers" and they include some of the species responsible for causing the most snakebite cases and deaths in the world.

### Description

Saw-scaled vipers are relatively small snakes, the largest species usually below 90 cm (35 in) long, and the smallest being around 30 cm (12 in).

The head is relatively small and is short, wide, pear-shaped and distinct from the neck. The snout is short and rounded, while the eyes are relatively large and the body is moderately slender and cylindrical.

### Venom

The [snake venom](#) of Echis species consists mostly of four types of toxins: [neurotoxins](#), [cardiotoxins](#), [hemotoxins](#), and [cytotoxins](#). The genus is recognized as medically significant in many tropical rural areas. They are widespread and live in areas lacking modern medical facilities. Most victims are bitten after dark when these snakes are active.[\[3\]](#)

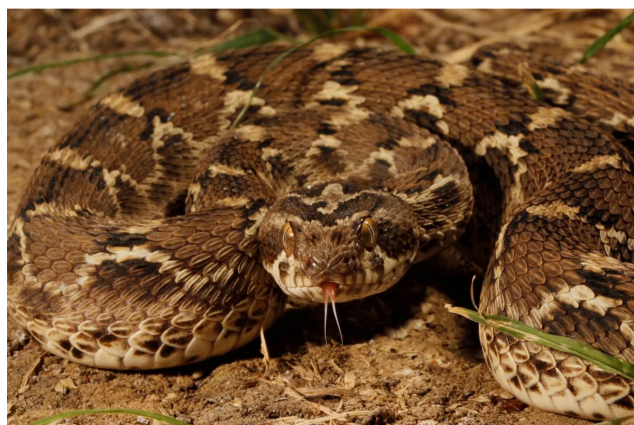
Most of these species have venom that contains factors that can cause a consumption [coagulopathy](#) and [defibrination](#), which may persist for days to weeks. This may result in bleeding anywhere in the body, including the possibility of an intracranial [hemorrhage](#). The latter classically occurs a few days following the bite.[\[9\]](#)

Venom toxicity varies among the different species, geographic locations, individual specimens, sexes, over the seasons, different milkings, and, of course, the method of injection (subcutaneous, intramuscular, or intravenous). Consequently, the [LD50](#) values for Echis venoms differ significantly. In mice, the intravenous LD50 ranges from 2.3 mg/kg (U.S. Navy, 1991) to 24.1 mg/kg (Christensen, 1955) to 0.44–0.48 mg/kg (Cloudsley-Thompson, 1988). In humans, the lethal dose is estimated to be up to 5 mg in some subspecies (Daniels, J. C. 2002).[\[10\]](#) Venom from females was more than twice as toxic on average as venom from males

### Symptoms

Localized pain is among the first and most common signs of a saw-scaled viper bite. Swelling is another common symptom of a saw-scaled viper bite. The venom can cause rapid and substantial swelling that can spread to adjacent body areas. Fever is another possible symptom of a saw-scaled viper bite. The bite from this venomous creature can potentially induce a fever within hours or days after the incident.





The Indian cobra (*Naja naja*), also known as the spectacled cobra, Asian cobra, or binocellate cobra, is a species of the genus *Naja* found, in India, Pakistan, Bangladesh, Sri Lanka, Nepal, and Bhutan, and a member of the "big four" species that inflict the most snakebites on humans in India. It is distinct from the king cobra which belongs to the monotypic genus *Ophiophagus*. The Indian cobra is revered in Indian mythology and culture, and is often seen with snake charmers. It is now protected in India under the Indian Wildlife Protection Act

### Description

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.

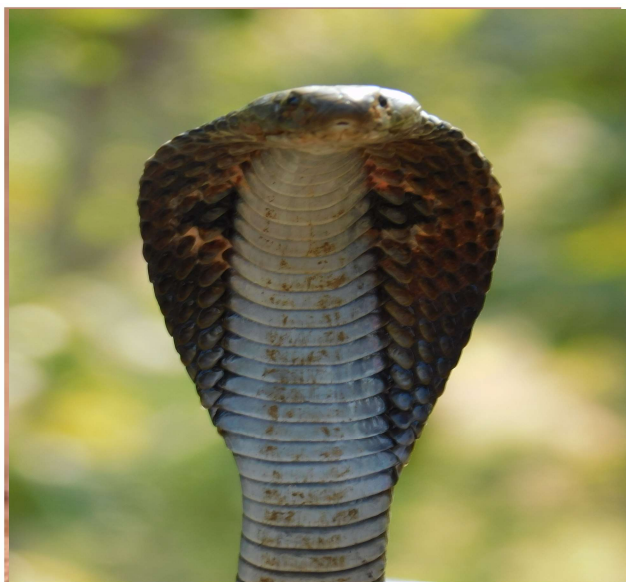
### Venom

The Indian cobra's venom mainly contains a powerful post-synaptic neurotoxin and cardiotoxin. The venom acts on the synaptic gaps of the nerves, thereby paralyzing muscles, and in severe bites leading to respiratory failure or cardiac arrest. The venom components include enzymes such as hyaluronidase that cause lysis and increase the spread of the venom. Envenomation symptoms may manifest between fifteen minutes and two hours following the bite.

### Symptoms

- Signs or symptoms of a snake bite may vary depending on the type of snake, but may include:
- Puncture marks at the wound
- Redness, swelling, bruising, bleeding, or blistering around the bite
- Severe pain and tenderness at the site of the bite
- Nausea, vomiting, or diarrhea
- Labored breathing (in extreme cases, breathing may stop altogether)
- Rapid heart rate, weak pulse, low blood pressure
- Disturbed vision
- Metallic, mint, or rubber taste in the mouth
- Increased salivation and sweating
- Numbness or tingling around face and/or limbs
- Muscle twitching







The Common Krait (*Bungarus caeruleus*), also known as the blue krait, is a species of highly venomous snake of the genus *Bungarus* native to the Indian subcontinent. It is a member of the "Big Four" species that inflict the most snakebites on humans in Bangladesh and India.

### Description

The average length of the common krait is 0.9 m (3.0 ft), but it can grow to 1.75 m (5 ft 9 in). Males are longer than females, with proportionately longer tails. The head is flat and the neck hardly evident. The body is cylindrical, tapering towards the tail. The tail is short and rounded. The eyes are rather small, with rounded pupils, indistinguishable in life. The head shields are normal

### Venom

The common krait's venom consists mostly of powerful neurotoxins, which induce muscle paralysis. Clinically, its venom contains presynaptic and postsynaptic neurotoxins, which generally affect the synaptic cleft (the points of information-transfer between neurons).

Kraits are nocturnal, so seldom encounter humans during daylight; incidents occur mainly at night. Frequently, little or no pain occurs from its bite, which can provide false reassurance to the victim. Typically, victims complain of severe abdominal cramps, accompanied by progressive paralysis. If death occurs, it takes place about 4-8 hours after the krait bite. Cause of death is general

The few symptoms of the bite include tightening of the facial muscles in 1-2 hours of the bite and inability of the bite victim to see or talk, and if left untreated, the patient may die from respiratory paralysis within 4-5 hours.

### Symptoms

1. General: These symptoms typically manifest within one to three hours, though for Kraits it can be up to 12 hours following the bite. Abdominal pain is usually moderate to severe and confined to the epigastrium, but can be generalized. Diffuse muscle tenderness rarely occurs.
2. Hematology: One may expect a polymorph leucocytosis ranging up to  $22 \times 10^3$  WBC with 90% polys.
3. Cardiotoxicity: A small amount of cardiotoxin is present in Indian Krait snake venom, but usually demonstrates no heart manifestations. A transient (5-15 minutes) decrease in arterial pressure without further changes has been reported.
4. Local Symptoms: In Krait bites, rarely if ever does local tissue destruction and necrosis appear. One can find minimal edema and pain at the bite site.
5. Fang Marks: Fang marks may be present as one or more well defined punctures, as a series of small lacerations or scratches, or there may not be any noticeable or obvious markings where the bite occurred. The absence of fang marks does not preclude the possibility of a bite (especially if a juvenile snake is involved). In general, the fang marks from a Krait are made from a quick, snapping motion. Multiple bites inflicted by a single snake or by more than one snake are also possible, and should be noted if present (See Special Considerations below). The presence of fang marks does not always imply that the injection or deposition of venom into the bite wound (envenomation) actually occurred.





Cat snake, any of several groups of arboreal or semiarboreal rear-fanged snakes in the family Colubridae with eyes having vertically elliptical pupils similar to those found in felines. Cat snakes are nocturnal hunters that become active at twilight. By day their pupils are contracted to narrow vertical slits, but as night falls the pupils expand to a nearly circular shape to let in as much light as possible.

### Description

Very thin, small snakes but long with respect to its thickness and has smooth scales but not glossy. Dorsal is greyish-brown with lighter zig-zag patterns over the body. Belly is whitish with tiny spots. Head is triangular with a distinct Y-pattern on top. Have large golden eyes with vertical pupils. Often confused with the Saw-scaled Viper, but can be distinguished by Y-pattern on head & body proportions. Grow to 2 feet on average.

### Symptoms

Bites unlikely to cause more than mild to moderate local swelling & pain, occasionally local bruising, paresthesia/numbness, erythema or bleeding, but no necrosis and no systemic effects.





Python is a reptile animal. It is a genus of constricting snakes under the Pythonidae family. They are the native snakes of the Eastern hemisphere. In the animal biological classification system, all the living creatures are classified into two kingdom-plant Kingdom and animal Kingdom. In the animal kingdom, Chordata includes a class called Reptilia. Python snake is a reptile animal of the class Reptilia. Generally, it does not attack humans. If they feel threatened, they will constrict. Python snakes do not have venom but can make serious injuries by attacking. Some of the snakes of this genus are the largest snakes in the world. Python snakes are Large in size and powerful. They can kill any living animal or human by squeezing. They have a triangular head, sharp teeth, and prehensile tails. Their teeth are backward curving. They are bulky in Size. They can be of several colours such as black, brown, tan, and pigmented shades of these colours. In this article, we will discuss some brief things about python snake.

## Description

Pythons are some of the largest snakes in the world. These big, non-venomous snakes can range from 23 inches to 33 feet in length, and they can weigh from 7 ounces to 250 pounds. Pythons live in a wide range of habitats, depending on the species, but many seek shelter in trees and can hold onto branches with their tails.





## Checkered Keelback

(Non venomous)

The checkered keelback (*Fowlea piscator*), also known commonly as the Asiatic water snake, is a common species in the subfamily Natricinae of the family Colubridae. The species is endemic to Asia. It is non-venomous.

### Description

Medium-sized body with keeled scales but looks glossy overall. Checkered pattern all over body in variations of green, yellow and brown. Often has two streaks from eyes and has round pupils. Looks just like the Bar necked keelback. Checkered keelbacks are semi-aquatic and rarely venture far from water. They lead a solitary life and are active both during the day and at night. These snakes may be quite aggressive. Often they try to raise their head as much as possible and expand their neck skin mimicking a cobra hood and intimidate the threat. If they can't escape from a threat they will readily strike and bite fiercely. They may also lose their tail as an escape mechanism.



The Trinket snake is a small attractive species of rat snake, famous for the ability to puff up their necks and arch into large S shapes to scare off predators. They are active, and although primarily nocturnal, frequently travel and explore by day. Although they are primarily terrestrial and live on the floor, they have a long slender tail and they use this for balance and support whilst traversing and exploring branches and bushes, so will use all the available space a vivarium has to offer.

### Description

Slender body with mostly smooth scales, sometimes hind body and tail possess keeled scales. Tan or olive, and chocolate brown with two black stripes on neck and light bands and/ or checks cover the forebody; hind body has two dark brown or black stripes that continue onto tail.





The Kukri snakes usually dwell in the plains. It's a diurnal snake and is often seen during the rainy season. It lives in the crevices of buildings and old walls. It can climb very skillfully. When irritated the snake inflates its body to a remarkable degree and flattens the posterior part of the head making the head more apparent.

### Description

The snakes are named for their enlarged hind teeth, which are broad and curved like the Gurkha sword of the same name. They occur in East and South Asia. All kukri snakes are egg layers, and most are less than 90 cm (35 inches) long. They feed largely on bird and reptile eggs.



*Lycodon aulicus*, commonly known as the Indian wolf snake, is a species of nonvenomous snake found in South Asia and Southeast Asia. Early naturalists have suggested its resemblance to the venomous common krait as an instance of Batesian mimicry.

### Description

The colouration of this snake is variable. *Lycodon aulicus* (Common Wolf Snake) *Lycodon aulicus* This snake is often confused with the common krait. The presence of a loreal shield can be used to distinguish it from kraits.





Olive Keelback is uncommonly found aquatic species of family Natricidae. This is distributed in most of the peninsular India, also in Uttar Pradesh. Can be seen in paddy fields during monsoon. With number of combination of colors of belly and dorsal body it is confusing for layman to identify it quickly.

### Description

It is a thin headed snake. The overall colour is rich olive-green, occasionally bordered with a red streak along each side of the body. The underside is yellow or orange. The females are usually larger than the males. They resemble Enhydris, another common water-snake; Enhydris is a smooth water-snake and it prefers river and estuarine. Olive Keelback Watersnakes are abundant in Kerala, Orissa and west-Bengal.



## Striped Keelback

(Non venomous)

The buff striped keelback (*Amphiesma stolatum*) is a species of nonvenomous colubrid snake found across Asia. It is a typically nonaggressive snake that feeds on frogs and toads. It belongs to the subfamily Natricinae, and is closely related to water snakes and grass snakes.

### Description

Striped Keelback is the most widely distributed *Amphiesma* species. Fairly common in many parts and can be seen easily in moist vegetation in moderate temperature. Can be identified by carefully checking two yellow-brown stripes on body (more visible on posterior half) and yellowish color on head including underside.





Bright green dorsal with sometimes irregular black bands or patches. Wide head, round pupils and neck often has an inverted V with black and yellow. Juveniles are more brightly colored with bands, they fade and disappear as they grow. Grow to 2 feet on average.

### Description

Green Keelback's overall colour is bright green with imprecise and irregular black cross lines. The head and neck bear a fairly clear 'V' mark which becomes part of the 'hood' design when the snake is provoked. The skin is slightly glossy and strongly keeled. The head is wide and eyes are large, round-pupilled. Their underside is greyish-white.





ndotyphlops braminus, commonly known as the brahminy blind snake[4] and [other names](#), is a non-venomous [blind snake](#) species. They are completely [fossorial](#) (i.e., burrowing) reptiles, with habits and appearance similar to [earthworms](#), for which they are often mistaken, although close examination reveals tiny scales and eyes rather than the annular segments characteristic of true earthworms. The species is [parthenogenetic](#) and all known specimens have been female.[5] The specific name is a Latinized form of the word [Brahmin](#).

### Description

Most adult Brahminy Blindsnakes are about 4.4–6.5 inches (11.2–16.5 cm) in total length. These snakes are small, thin, and shiny silver gray, charcoal gray, or purple. The head and tail both appear blunt and can be difficult to distinguish from each other. Juvenile coloration is similar to that of adults.





Indian sand boas are solitary and live underground. They spend much of their time basking below the surface of the sand, with only their eyes or head exposed waiting on potential prey. When a catch approaches, sand boas erupt out of the sand, bite, and employ constriction to subdue an animal.

### Description

Adapted to burrowing, the head of this snake is wedge-shaped with narrow nostrils and very small eyes. The body is cylindrical in shape with small polished dorsal scales. The tail, which is blunt, rounded, and not distinct from the body, appears truncated. Coloration varies from reddish-brown to dull yellow-tan.





## Common Bronzeback Tree Snake

(Non venomous)

Common Bronzeback is the most widespread *Dendrelaphis* species of India which is the only species of genus in most of the parts of Indian mainland. It can be easily identified by checking a rounded whitish spot on the top of head, very thin body which shows sky blue dots on dorsal surface and most of the side dorsal & belly of yellowish-white color.

### Description

*Dendrelaphis tristis* is a long, slender snake with a pointed head and a bronze coloured line running right down its back. Its diet includes geckos, birds and occasionally frogs. This harmless snake prefers the tree tops to life on the ground.





Rat snakes are members – along with kingsnakes, milk snakes, vine snakes and indigo snakes – of the subfamily Colubrinae of the family Colubridae. They are medium to large constrictors and are found throughout much of the Northern Hemisphere. They feed primarily on rodents.

### Description

Rat snakes are medium-to-large, nonvenomous snakes that kill by constriction. They pose no threat to humans, and as their name implies, rats are one of their favorite foods. There are Old World (Eastern Hemisphere) and New World (Western Hemisphere) rat snakes, and the two types are genetically different.



*Eryx johnii* is a species of nonvenomous snake in the subfamily Erycinae of the family Boidae. The species is endemic to Iran, Pakistan, and India. There are no subspecies which are recognized as valid.

Common names include: Indian sand boa, John's sand boa, erutaley nagam, mannoli pambu, red sand boa, brown sand boa.

### Description

Adults of *E. johnii* rarely exceed 2 feet (61 cm) in total length (including tail), although they sometimes reach 3 feet (91 cm). Adapted to burrowing, the head is wedge-shaped with narrow nostrils and very small eyes. The body is cylindrical in shape with small polished dorsal scales. The tail, which is blunt, rounded, and not distinct from the body, appears truncated. Coloration varies from reddish brown to dull yellow-tan.





## Barred Wolf Snake

(Non venomous)

*Lycodon aulicus*, commonly known as the Indian wolf snake, is a species of nonvenomous snake found in South Asia and Southeast Asia. Early naturalists have suggested its resemblance to the venomous common krait as an instance of Batesian mimicry.

### Description

The colouration of this snake is variable. *Lycodon aulicus* (Common Wolf Snake ) *Lycodon aulicus* This snake is often confused with the common krait. The presence of a loreal shield can be used to distinguish it from kraits.



## Snake Venom

### 4 Types of Snake Venom

#### Hemotoxic Venom

Hemotoxic venom destroys the red blood cells in the body of an afflicted person while also impacting tissues and organs. People injected with hemotoxic venom will know right away in most cases. The venom breaks down cells and tissue around the injection site, leading to tremendous pain.

This venom can also cause blood clotting or even prevent blood clotting; either situation can be deadly. The results of this venom in humans include cardiovascular failure, loss of an affected limb, and massive internal bleeding.

Hemotoxic venom works slower than other types of snake venom, though. That means a person can often survive with proper medical attention.

#### Neurotoxic Venom

Snakes that inject neurotoxic venom impact animal's nervous systems causing muscle paralysis, damage to the brain, and loss of consciousness. This sort of venom hinders the nerve impulses around parts of the body, acting very quickly in some cases.

Unlike hemotoxic venom, neurotoxic varieties can be delivered without a lot of pain. In fact, some people do not realize that they have been bitten until they begin feeling symptoms.

Black mamba venom can have noticeable symptoms in as few as 15 minutes and can render a human unconscious in less than an hour. Without treatment, which is hard to receive if one suddenly collapses, neurotoxic venom is often fatal.

#### Cytotoxic Venom

As the name suggests, cytotoxic venom kills cells. This type of venom is often found in cobras and other elapids. This venom is not as deadly as hemotoxic or neurotoxic venom. However, secondary injuries such as loss of limb function and other disabilities often stem from cytotoxic venom.

This venom is known to severely damage skin and underlying tissues, often leading to disabilities in the victim. Even if they survive the initial bite, these complications can leave the individual hindered for life.

#### Proteolytic Venom

Proteolytic venom consists of proteolytic enzymes found in all venomous snakes that cause the degradation of tissue structures. Specifically, the venom acts at the site of the envenomation, and that's part of the reason that humans see such dramatic changes where the bite occurs.

The venom breaks down blood vessel walls along with muscle tissue, accelerating the death of the prey and potentially helping with digestion. Large amounts of proteolytic venom are found in rattlesnakes and other pit vipers, working with their hemotoxic venom to inflict devastating wounds.

S.no	Venom	Damage it Inflicts	What snake is found in
1	Hemotoxic	Destroys the red blood cells; can also cause blood clotting or even prevent blood clotting, cardiovascular failure, loss of affected limb, and massive internal bleeding.	Rattlesnakes, Russell's viper, and copperheads
2	Neurotoxic	Causes muscle paralysis, damage to the brain, and loss of consciousness, even death.	Black Mambas, Coral, Cobra snakes
3	Cytotoxic	Kills cells, severely damaging skin and underlying tissues	Cobras and other elapids
4	Proteolytic	Breaks down blood vessel walls along with muscle tissue, accelerating the death of the prey	Found in all venomous snakes



## Antivenom

### Snake Venom Antiserum Injection MANUFACTURER

Bharat Serums & Vaccines Ltd

### SALT COMPOSITION

Standard Cobra Venom (Naja naja) (0.6mg)  
Standard common krait Venom (Bangarus caeruleus) (0.45mg)  
Standard Russels Viper Venom (Vipera russelli) (0.6mg)  
Snake Venom Antiserum (Polyvalent) (0.45mg)

### STORAGE

Store in a refrigerator (2 - 8°C). Do not freeze.

### PRODUCT INTRODUCTION

Snake Venom Antiserum Injection is a prescription medicine. This is a combination of four venoms that is prescribed in the treatment of snakebite. It neutralizes the venom and prevents life-threatening events. Snake Venom Antiserum Injection should only be administered under the supervision of a healthcare professional. It is strictly to be taken as per the doctor's prescription. The common side effects of this medicine are nausea, vomiting, diarrhea. You may also experience injection site redness, swelling and pain that goes away with time. If any of the side effects gets more serious, you must consult your doctor immediately. It is advised not to drive or operate any heavy machine without consulting your doctor.

### BENEFITS OF SNAKE VENOM INJECTION

A snake bite needs emergency medical attention to prevent any harmful effects of the snake poison (venom) as it can be life-threatening too. Snake Venom Antiserum Injection helps prevent any toxic effects caused by the snake venom in a person after a snake bite. It is given as an injection by a doctor or nurse and should not be self-administered. Follow your doctor's instructions carefully to get maximum benefit.

### SIDE EFFECTS OF SNAKE VENOM INJECTION

Most side effects do not require any medical attention and disappear as your body adjusts to the medicine. Consult your doctor if they persist or if you're worried about them

#### Common side effects of Snake Venom

- Headache
- Nausea
- Vomiting
- Diarrhea
- Stomach pain
- Chills
- Muscle pain

## HOW SNAKE VENOM INJECTION WORKS

Snake Venom Antiserum Injection is a combination of four anti-snake venoms. They work by binding to the snake venom and neutralizing its harmful effects on the body.

### Quick tips

Snake Venom Antiserum Injection is given to treat a snake bite.

Snakebite is an acute life-threatening time-limiting medical emergency. Do not panic and immediately immobilize the affected part.

Do not block the blood supply or apply pressure on the affected part.

Reassure the patient to overcome fear and immediately take to the nearby medical center for treatment.

The patient will be monitored closely for any life-threatening reaction like anaphylaxis (severe allergic reaction) after administering Snake Venom Antiserum Injection.

## FIRST AID INFORMATION IN SNAKE BITE EMERGENCY :

### WHAT TO DO :

- Allow bite to bleed freely for 1 - 2 minutes.
- Using a disinfectant, thoroughly clean the wound if possible.
- Apply hard direct pressure with gauze pad over bite area.
- Strap pad tightly in place with adhesive tape.
- Remove tight clothings, shoes, watch or rings.
- Keep affected extremity as close to heart level as possible.
- Immobilise affected part, if possible use a splint.
- Give plenty of reassurance to the victim.
- Transport to medical facility as quickly as possible.

### WHAT NOT TO DO :

- Do not use ice or any other type of cooling agent on the bite.
- Do not apply tourniquets.
- Do not make incisions in the wound.
- Do not apply electric shock.
- Do not give anything to eat or drink.

### Antivenom list

1. Snake venom antiserum injection
2. ASV injection
3. Snake Antivenin vaccine
4. Antivenom Immunoglobulin



## Company Details

### 1. Snake Venom Antiserum Injection

#### **Bharat Serums & Vaccines Ltd**

BSV established in 1971 by the late Dr. Vinod Daftary researches, develops, manufactures, and markets injectable biological, pharmaceutical, and biotechnology products.

Address: 3rd Floor, Liberty Tower, Plot No. K-10, Behind Reliable Plaza Kalwa Industrial Estate, Airoli, Navi Mumbai, Thane 400 708.

Phonel: +91-22-4504 3456

Fax: +91-22-4504 3200

Email: [corporate@bsvgroup.com](mailto:corporate@bsvgroup.com)



### 2. V Asv Injection

#### **Virchow Biotech Pvt Ltd**

Virchow Biotech is the part of Virchow Group incorporated in 1981. Other group companies are leading manufacturers of Sulphamethoxazole, Ranitidine, Cephalosporins and various other APIs.

Address: Plot No 319, 320, 3rd floor East Avenue Swamy Ayappa Society Madhapur, Hyderabad – 500081

Phone: +91-9700017883 | +91-9700017820

Email: [info@virchowbiotech.com](mailto:info@virchowbiotech.com)



### 3. Snake Antivenin Injection

#### **Biological E Ltd**

Biological E. Limited (BE) started during a time when the nation sought access to critical healthcare products. Founded and led by Dr. DVK Raju, Biological E. Limited commenced its operations in 1953 as a biological products company manufacturing liver extracts and anti-coagulants.

Address: Road No. 35, Jubilee Hills Hyderabad, Telangana -500033

Phone: 91-40-7121 6000, 91-40-7121 6064 / 6332

Email: [info@biologicale.com](mailto:info@biologicale.com)

